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PRICE PROTECTION AND THE AGENCY-COUPON PLAN.

THE BEST of all price protection plans is the thorough organization of pharmacists, i. e., the collection of practically all pharmacists into local, state and national associations, and the close knitting together of these various bodies in purpose and sympathy. With such a complete organization of pharmacists almost any plan of protecting prices is feasible; without it no plan will be entirely successful.

The contest between the law which would maintain trade free and profitable for all alike and the efforts of organized business to concentrate it within the hands of a few is a never-ending one. Like the safe-breaker who uses in his tools the materials invented by the safe maker to protect his safes against burglary, so the trade demoralizer uses to drive out his competitor and to destroy competition the very rules of law which were invented to check his depredations.

The doctrine of the common law regulating contracts alleged to be in restraint of trade and in favor of monopoly is an ancient fetish, and while it may have served some useful purpose in an age of less complex business relations, has long since outlived its usefulness.

In fact, as interpreted under modern conditions, the phrase "in restraint of trade" is a euphemistic title for the rule of might over right, since no means has been found so efficient by great aggregations of capital for the destruction of the man of small means as by underselling him until he is driven out of business, and

the market is left in the grasp of those who control the longest purse. The monopolist finds that the losses endured while destroying his small competitors are trifling when compared with the advantage of securing complete and undisturbed control of the business.

The U. S. Supreme Court did not announce a new doctrine of the law when it decided that the lawful owner of goods can legally fix the price at which they may be sold by his agents, and also that when he divests himself of ownership his control ceases. These principles of the common law have been established so long that, in legal phrase, "the memory of man runneth not to the contrary."

What the Supreme Court did establish in the celebrated Miles case, decided some months ago, was simply that in the case at bar the relation of principal and agent was only seeming and not real; that the seeming agency was deceptive and that the seeming agent was the owner in fact of the goods in his possession, and therefore entitled to exercise all of the prerogatives that accompany ownership, including the right to fix his own selling price for them.

THE COUPON PLAN.

Trade agreements and selling plans are like automobiles and typewriters in that each addition to the number of parts in the working system increases enormously the break-down risk and the difficulty of keeping the system in effective running order. In other words, that with every additional person, element or detail introduced into a selling plan, the chance of failure increases by multiplication and not by simple addition.

A selling plan, then, should be simple, direct, easy to understand, and not tedious to apply; there should be as few parties involved as possible; and the plan should be one which will be as nearly as possible automatic in operation, i. e., one which will tend to enforce itself without the active intervention of all the parties to the contract.

The coupon plan of compelling a fixed price for the sale of proprietaries has been suggested at various times and in various forms, one form of which has lately been proposed by the N. A. R. D. under the name of the "Boehm plan."

In its simplest form it requires the affixing of a coupon to each serially numbered package, and which is detached at the time of sale, and upon return to the manufacturer or jobber, with satisfactory evidence that the package was sold at the full established price, entitles the holder to a rebate which constitutes his profit on the sale of the goods, the latter having been purchased at full retail price.

In this form the plan is analogous to the plan of enclosing coupons in the package which entitle the purchaser to some premium; it involves a minimum of detail, and if all parties should comply faithfully with the conditions, would perhaps come as near to solving the problem of price protection as anything that could be devised.

Before pronouncing absolutely in its favor, however, we must consider whether the plan runs afoul of the law against combinations or contracts in restraint of trade, and also how far it can be rendered inutile by the exercise of bad faith.

A contract consists of an offer, express or implied, followed by an unqualified

acceptance, express or implied. Both offer and acceptance are essential, and the pact is not capable of enforcement if either be lacking.

In the plan under consideration the offer made by the manufacturer is evidenced by the coupon attached to the bottle or parcel. It is a separate and distinct offer made with each unit package, and not with dozen, gross or car-load lots. The acceptance is evidenced by the resale of the package in accordance with the terms of the coupon, i. e., at full price, and by the return of the coupon for redemption.

The mere acceptance of the goods from the carrier does not constitute acceptance of the offer, because the goods may be obtained with the intention of violating the terms of the agreement, or the terms may be complied with in the sale of one package and violated in the sale of the remainder.

If this reasoning is valid, the contract or agreement is not a general one, but one which arises and is created with each separate sale, and even if 40,000 druggists handle the article, a combination is not produced, since it is open to each one to either accept or reject the offer at the time of each and every sale.

Neither does it seem that the mere presence of the coupon upon the package could be construed as operating in restraint of trade, because it is always open to the owner of the package to either sell in compliance with the terms of the coupon or to ignore them, as he may choose.

THE AGENCY-COUPON PLAN.

As regards simplicity, the coupon plan as above outlined leaves little to be desired, but it does not sufficiently guard against bad faith on the part of some of the parties to the transaction, neither will it prevent the trade demoralizer from selling the goods at less than the stipulated price if he chooses to do so, since he is their actual owner, and "a man may do what he will with his own."

To provide against these defects, and at the same time to make the retailer the real as well as the ostensible agent of the manufacturer, the agency-coupon plan has been proposed, and is the device of Frank H. Freericks, Esq., a member of the A. Ph. A., and special counsel of the N. A. R. D., and is set forth in N. A. R. D. Notes of April 11.

This plan seeks to join the coupon plan with a bona fide agency contract evidenced by written agreements of the retailer and jobber with the manufacturer, and retains the absolute right of ownership in the manufacturer until the retail sale has been made in accordance with the terms of the written agreement, the coupon evidencing the agent's claim for commission.

The plan contemplates the creation of two sorts of agents, distributing agents or wholesalers, and local agents or retailers.

Both distributing and local agents make cash deposits approximately equal to what they are now required to pay for the goods, in proportion to quantities purchased, and the per cent. of commission is proportioned in like manner. The retailer, within a specified time after receipt of the goods, returns to the manufacturer the coupons attached, properly filled out, whereupon the manufacturer notifies the distributing agent of the amount to be allowed to the local agent as commission.

The burden of keeping track of the distribution is thus laid mainly on the

manufacturer, the wholesaler being required only to furnish the goods to the local agent in the manner specified in the contract, and to charge the consignment account.

To persons not accredited as local agents, the wholesaler may sell only single packages, and at full retail price. In such cases the manufacturer may by separate agreement remit the commission to the person after the goods have been resold at full retail price.

The objects sought by this modification of the coupon plan are to make the wholesaler and retailer the actual as well as the ostensible agents of the manufacturer, and to retain the ownership of the goods in the latter until they are actually sold in accordance with the terms of the agreement. As the contract expressly provides that the goods are placed on consignment, the manufacturer can resume possession at any time if the retail agent violates the agreement as to selling price, while the compensation of the agent assumes the form of a commission on goods sold for another instead of a profit on goods of which he has complete ownership. Other details of the plan relate to the times of settlement, rates of commission in proportion to size of purchase, forfeiture of deposit for failure to conform to agency contract, settlement of disputes by arbitration, etc., etc.

While the plan will necessarily need much discussion, and perhaps a legal test before it can be regarded as providing a final solution of the question of price protection by contract, it possesses many attractive features from the retailer's standpoint, and it is to be hoped that proprietors, jobbers and retailers will unite to give it a thorough and honest trial. J. H. BEAL.

A RATIONAL CALENDAR.

The calendar and the hours of the day seem to most of us almost like part of the natural and immutable order of things, and however much trouble the present indefensible system has caused, men have felt that it was rash—almost impious—to suggest a change in it. "Give us back our eleven days!" cried the mob when the Gregorian calendar was introduced into Great Britain. From the days of Julius Cæsar to our own, he has been a bold reformer indeed who would suggest changes in the disorderly procession of the months. Now enters Moses B. Cotsworth of Victoria, B. C., with a proposal for a rational calendar. He would divide the year into thirteen months, each of twenty-eight days, which would leave one extra day in the year, and this he beautifully plans as a free day for every one—free from interest charges on money, the necessity to work, the wage scale, etc. Then each month would commence on Sunday and the first, eighth, fifteenth and twenty-second days of each month would be Sundays. President Hadley of Yale is quoted as saying that the month of four weeks "will come as a commercial necessity." The adjustment to the change would be very small compared to that necessitated when standard time was introduced on transcontinental railways. Mr. Cotsworth has literature to distribute, poking fun at the present system. If he wins, school children need no longer learn: "Thirty days hath September."—*Jour. Am. Med. Assn.*

Book Reviews

DIGEST OF COMMENTS ON THE PHARMACOPOEIA OF THE UNITED STATES OF AMERICA (Eighth Decennial Revision) and on the NATIONAL FORMULARY (Third Edition) for the calendar year ending December 31, 1909. By Murray Galt Motter and Martin I. Wilbert, Washington, Government Printing Office, 1910. Published as Bulletin 79, Hygienic Laboratory of the U. S. Public Health and Marine Hospital Service.

Beyond a doubt this is one of the most valuable publications in existence for the busy chemist who wishes to keep reasonably in touch with the work that is being done along pharmaceutical, medical, and chemical lines of work, in all parts of the world. This is the fifth volume to appear, and like the previous ones, is very complete, containing articles abstracted from 237 publications and 23 pharmacopœias.

From the standpoint of a State Food and Drug Chemist, this is an exceedingly valuable reference book, as one can see at a glance the work that has been done along drug lines, for any year, since the beginning of the Digests, and which covers a much wider scope of scientific literature than the average chemist has at his disposal.

The general plan of the book remains very much the same as in previous ones, the scope, if anything, being slightly enlarged, the present volume containing 730 pages of abstracts, and containing between 7000 and 8000 abstracts and tables, covering a very wide range of subjects, and giving in each case the name of the author, the reference to the original publication, and a concise, unbiased abstract of the contents.

Bulletin 79 of the Hygienic Laboratory is free to any one interested in such a publication, and no scientific library is complete without one on its shelves.

LINWOOD A. BROWN.

It was certainly a bit of good fortune that, when the work on the former "Digest of Criticism" was to be resumed, the Hygienic Laboratory offered its coöperation. Valuable as was the "Digest of Criticism," inaugurated by the late Dr. Charles Rice, to the active members of the Revision Committee of the U. S. Pharmacopœia, it was valuable primarily to those who were content with a partial review of the subject. To those who were content with nothing but complete information on a given subject, it served but as a partial check on their own bibliography.

To the pharmaceutical scientist, the "Digest of Comments" is not a working collection of abstracts, it is a catalogue somewhat after the supplemental volumes to the "Beilstein" of the organic chemist. Hence its principal merit lies in its completeness as such a catalogue of references.

No doubt, some believe that this desire for completeness is carried too far when mere opinions are recorded as well as observations and results of experiments.

The writer cannot share this belief, though he may have his own ideas about the mere opinions of others.

Thus e. g. one author is quoted as having stated "that the oil of chenopodium must be judged entirely by its physical characters, as the constants and tests have been entirely omitted in the corrected editions." Another author "points out that as this is an American product, no difficulty should exist that would prevent the preparation of authentic samples and the establishment of correct descriptions and tests." These two opinions are followed up by a record "of physical characters" conspicuous by the absence of chemical "constants" and "tests." Yet even such opinions, the expression of which demands less time and labor than the determination even of specific gravities, angles of rotation, and solubility, though made by persons ignorant of the specific problems involved, may do some good, and hence should be recorded. They will not cover the defects, but by calling attention to them they may emphasize the necessity of trying again. If, in addition, they had but brought out the fact that this "American product" has been studied principally by foreigners, to whom we are almost exclusively indebted for the little we know about it, then possibly the stigma resting upon us as American scientists who are after the dollar and professional glory more than after the discovery of truth might have been brought home with more effect. Even the undergraduate student who prepares a bibliography of a pharmacopœial item is struck with the amount of rubbish that he has to record from American pharmaceutical journals in order to make his bibliography complete.

However, the true scientist will welcome any and all suggestions and criticisms and will try to meet them as best he can. The above selections are quoted at random simply because the book seemed to open at the particular page and because they illustrate as well as any others the care taken by the editors to present all points of view on a given subject. That they have not reserved to themselves the editorial prerogative of quasi critical selection should be mentioned to their credit. All that the scientist asks for is that he find practically everything and that he thus be relieved of the necessity to search for himself.

As to the teacher's point of view, this the writer can best explain by stating that in the University Dispensary and affiliated laboratories the "Digest of Criticisms" has a place side by side with the dispensatories next to the U. S. Pharmacopœia and National Formulary. If the dispensatories are commentaries on the U. S. P. and N. F. then the "Digest of Comments" is the latest annual commentary which often throws light on a pharmacopœial problem where the large tomes fail to do so. Hence, in a way at least, the "Digest" is even more valuable to the student working at pharmacopœial problems than the more pretentious dispensatories. While the information in the established text is more or less crystallized, that of the "Digest" imparts life as it were, even though the information imparted be merely that of a personal opinion. This is a very important factor in the training of a student especially in a country like ours where the authoritative text book is doing so much harm. EDWARD KREMERS.

When Motter and Wilbert, men well known to the pharmaceutical and medical professions, began the compilation of Comments on the U. S. P., VIII,

during the year 1905 and published same in March, 1909, as Bulletin No. 49 of the Hygienic Laboratory it consisted of 295 pages. The second volume also included the comments on the National Formulary during 1906 and contained 523 pages. How thorough and careful the literature of the entire civilized world has been reviewed is shown by the size of the present volume, the fifth of the series of "Digests," which contains 735 pages. The list of the literature reviewed occupies seven pages printed in small type.

The work is arranged in three parts:

I. General Comments, embracing legal status, scope, nonpharmacopœial standards, analytical data, biologic products, vegetable drugs and pharmaceutical preparations. As diagnostical tests are to be included in U. S. P. IX, therefore the compilers of the present bulletin have also added a chapter on "Clinical Tests," containing the most important references as to their nature and uses, in the literature during 1909. How complete this part of the bulletin is can be judged from the size of the chapter, namely nine pages, four of which are devoted to urine analysis. This information should prove very useful to the officers of the U. S. Public Health and Marine Hospital Service, to the members of the U. S. P. and N. F. Revision Committees, to laboratory workers, to medical men and also to pharmacists.

II. International Standards, containing references to the Brussels Conference and Protocol and to the foreign pharmacopœias. We take notice that among these the British Pharmaceutical Codex, published by the Pharmaceutical Society of Great Britain, is also included, although not a pharmacopœia. We would therefore make the suggestion that the "Ergänzungsbuch," the supplement to the Deutsche Arzneibuch, the third edition of which has been published in 1906 by the Deutsche Apotheker-Verein, be also included in this list. This part contains many very useful tables, f. i., degree of compliance with provisions of Brussels Conference, survey of compliance with these provisions and official medicinal and potent wines.

III. Comments on Official Articles. This most important part of the book occupies 550 pages, and it should quite especially appeal to the practical retail pharmacist who is interested in the U. S. P. and N. F. and their galenical preparations. The latter are commented on, as far as possible, under the official name of the drug or chemical, but groups of galenicals are properly given under their respective titles as Aqua, Elixir, Liquor, Tinctura, Unguentum, etc. As a reference work the practical pharmacist will find this part of the book very valuable indeed, as it will acquaint him with the improvements made in the galenical preparations. It is also a pleasure to notice that the many references on almost every page show that they were abstracted from *Proc. Am. Pharm. Ass.*, 1909, v. 57, thus proving what a mint of pharmaceutical knowledge our proceedings contain. Let us hope that in the "Digest of Comments" for 1912 the JOURNAL A. PH. A. will also occupy such a prominent place.

Pharmacists and others interested in the "Digest of Comments" can secure a copy of Bulletin No. 79 up to the limit of free distribution by applying to the Surgeon-General of the Public Health and Marine Hospital Service, Washington, D. C., or for a nominal sum the Bulletin can also be obtained from the

Superintendent of Documents, Government Printing Office, Washington, D. C. It should also be remembered that the receipt of the Bulletin should be acknowledged, which is taken as an indication of interest and the continuing of his name on the mailing list.

OTTO RAUBENHEIMER.

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OLD-TIME MAKERS OF MEDICINE. The story of the students and teachers of the science related to medicine during the middle ages. By Dr. James J. Walsh, Professor of Nervous Diseases and of the History of Medicine at Fordham University, School of Medicine. One vol., pp. VIII, 446. Fordham University Press; New York; 1911.

The appearance of the above title in a pharmaceutical journal might suggest that the "Old-time Makers of Medicine" is a history of early pharmacists. But such is not the case. Again, it might be supposed that reference is had in the volume to the early physicians as the compounders of their own medicaments. But such, too, is not the case. The "makers of medicine" referred to are not the makers of medicaments, but the founders of the science and profession of medicine. Yet there is sufficient pharmaceutical material between the two covers to justify a brief review in a pharmaceutical journal.

To begin with, the outward appearance of the volume and the printed page are attractive. When one begins to read, the style is likewise found attractive. The author disclaims originality, giving credit to German and French medical historians as the sources of his information. The style is rather that of the popular essayist than that of the erudite student of medical history. One might well quote Hoefer's "Avant-propos" to his "La chimie enseignee par la biographie de ses fondateurs," with which Welsh's tome is comparable in other respect as well, viz: "Instruire, plaire et donner à penser, tel est le probleme que nous sommes proposé de resoudre en e èrivant ce volume."

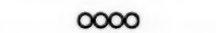
While it cannot be said that the author has made any special effort to please, it becomes apparent from almost every page that he desires his readers to think. The themes to which he directs their thoughts most are these: that the scientific spirit is not a psychological development of the nineteenth century, that much of what is supposed to be new in medicine is not original, but rediscovered, and that even the dark ages were not as dark as they are often thought to have been. He points to a sufficient number of isolated instances of enlightenment that go back far enough so as not to come in conflict with any stereotype notion of when the dark ages ended and the renaissance began.

From what has been said the pharmacist cannot go amiss expecting to find pharmaceutical history in this volume. Yet the "story" of the old-time makers of medicine is told in so non-technical a style that the pharmacist as well as the general reader may find much of interest between the two covers. However, here and there one gets glimpses even of pharmaceutical history. Inasmuch as Italy was the home of the modern European apothecary shop, the following paragraph from the chapter on "Mondina and the Medical School at Bologna" may here be quoted:

"Mondino came from a family that had already distinguished itself in medicine at Bologna. His uncle was a professor of physics at the university. His father, Albizzo di Luzzi, seems to have come from Florence not long after the middle of the thirteenth century, for the records show that, about 1270, he formed a partnership with one Bartolommeo Raineri for the establishment of a pharmacy at Bologna. Later this passed entirely under the control of the Mondino family, and came to be known as the Spezieria del Mondino. In it were sold, besides Eastern perfumes, spices, condiments, probably all sorts of toilet articles, and even rugs and silks and feminine ornaments. The stricter pharmacy of the earlier times developed into a sort of department store, something like our own. The Mondini, however, insisted always on the pharmacy feature as a specialty, and the fact was made patent to the general public by a sign with the picture of a doctor on it. This drug shop of the Mondini continued to be maintained as such, according to Dr. Pilcher, until the beginning of the nineteenth century."

Though not a contribution to the history of medicine in the sense of historical research, it is a valuable contribution in this respect that it will turn the attention of thousands of readers to the historical development of medicine. Even if the style of presentation were not as pleasant as it is, the author's controversial writings on the subject of the history of the medical sciences would be certain to secure for himself and his book an audience of no mean size.

EDWARD KREMERS.



REPORTS OF THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION. Volume 4, January-December, 1911. By W. A. Puckner, Director of the Laboratory. Press of the American Medical Association (Chicago).

This 8vo volume of 127 pages includes the reports of the work done in the Chemical Laboratory of the American Medical Association during the year 1911 and should be of special interest to drug analysts and druggists generally. The contained material is grouped under three headings: I. Reprints of contributions; II. Reports abstracted from the Journal; III. Reports not previously published, and varies in nature from a general discussion of the proprietary medicine business in the United States to reports of analyses of secret remedies on the one hand and to the establishing of standards for little used medicaments on the other.

Even a cursory review of the contents of the book evidences the fact that it represents the character of work that should be done by the pharmaceutical associations of this country and, with the preceding volumes, it may well serve as an incentive for the future development of pharmacy along professional lines.

It is to be regretted that with our present day lack of appreciation, in pharmacy, of Association work along professional lines, considerable time must elapse before we can expect to do work along the lines fostered by the "Apotheker Verein" in Germany or by the American Medical Association as reflected in the report under discussion. For the more rapid development of the professional spirit in American pharmacy it is sincerely to be hoped that this little volume will be studied by all members of the American Pharmaceutical Association who are in any way interested in the professional side of their calling.

M. I. WILBERT.

NEW AND NONOFFICIAL REMEDIES, 1912. Containing descriptions of the articles which have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association prior to January 1, 1912, Chicago. American Medical Association.

The up to date and progressive pharmacist has long since become acquainted with this annual publication of the American Medical Association. In addition to being an enumeration of the articles that have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association as complying with its rules, this book also contains descriptions, tests and standards for practically all of the more widely used nonofficial remedies. As a source of useful information regarding the newer materia medica, N. N. R. is perhaps unexcelled by any book of reference in the English language, and no active dispensing pharmacist can well afford to be without it M. I. WILBERT.

THE PRIMAL ISSUE.

A correspondent of the Chicago Record-Herald divides all the world into two parts, thus:

"There are two distinct types of mind, or spirit: One is beneficent, benevolent, altruistic, interested in the truth, but unskilled in turning things to one's own personal advantage. The other has the underlying instinct to turn every movement of society to its own pecuniary advantage."

The first social or political issue ever suggested to the human race was when Cain, the murderer, answered the Lord, "Am I my brother's keeper?" Cain's idea was that he was not, and ever since then a very large portion of the human race has inherited his idea. Cain got mad at Abel because the Lord favored him and accepted his sacrifice. Why? Because Cain's life was not in accordance with his professions.

We see these days so many people jealous of others on account of the others' success; but that success came because they did the right thing, lived clean and wholesome lives; their sacrifices were accepted, not because the lambs were better than the fruits, but because they themselves kept sober, honest, diligent, upright, and just. It depends upon what a man is, whether his sacrifice is accepted or not. Abel himself was noble, pure, honest and square, and because he was so, the Lord favored him and Cain slew him. So runs the world. There is still murder in the garden of Eden.—*Ohio State Journal.*

Contributed and Selected

A DISTURBING FACTOR IN OPIUM ASSAYS.

CHAS. H. LA WALL.

The present official method for assaying opium with its safeguard of the lime water correction has been looked upon as giving results as nearly correct as our present scientific knowledge could expect, considering the variable character of the substance assayed, but I have recently been confronted by a condition which is alarming in its possibilities.

A sample of high assaying opium (about 21% morphine) which had been largely diluted with milk sugar, was submitted for assay, together with some of the original material, the directions being to assay by the U. S. P. method and report results.

Of course, the use of 10 Gm. of an opium assaying over 20 per cent. of morphine would yield an amount of morphine far in excess of that contemplated by the assay process given in the U. S. P. and trouble was looked for in this direction. While some difficulty was encountered in getting a pure morphine on account of the large bulk of the precipitate, closely agreeing duplicates were obtained, which were probably very close to the truth. In the assay of the sample, however, in which 5 Gm. of milk sugar had been added to 5 Gm. of the opium (10 Gm. being directed to be taken) most astonishing results were obtained, which upon examination the conditions could be easily explained.

The duplicates showed results varying from 1.240 Gm. to 1.765 Gm. of crude morphine (corresponding to nearly 40% of morphine in the original opium in the higher figure), and the lime water correction factor being practically unweighable, the results would naturally have been reported as pure morphine had it not been for their extreme abnormality. Upon titrating the residues with tenth normal acid, correct results were obtained and further investigation showed that milk sugar, when present in such an abnormal proportion as that above given, separates with the morphine in the assay process and being soluble in lime water is liable to be reported as morphine unless the additional safeguard of titrating the residue is employed.

The results are somewhat irregular in that the milk sugar does not always precipitate (owing probably to varying temperature conditions, as lower temperatures give higher apparent results), nor does it always precipitate to the same extent in duplicate assays, but since it does sometimes interfere, as is shown by the foregoing results, it would seem necessary to take the possibility into account in the next official assay process.

ANALYTICAL LABORATORY OF C. H. LAWALL, PHILADELPHIA.

THE RELATIVE STRENGTH OF FRESH AND OLD SAMPLES OF THE FLUIDEXTRACT OF ERGOT.

CHAS. C. HASKELL AND CHAS. R. ECKLER.

The importance of having medicinal preparations of constant strength can not be overestimated. Many factors over which the physician has no control of necessity arise when patients are treated with drugs, and if the drugs administered are of unknown and variable strength, truly rational therapy is impossible. Fortunately, chemical investigation has been so fruitful of results that most of the important drugs used in therapeutics can now be standardized with great accuracy.

Even if preparations are of definite strength at the time of manufacture, however, the question arises as to whether deterioration can not occur before their employment. It is well known that in aqueous solutions some of the alkaloids rapidly decompose. Careful examination [18] has shown, however, that most galenical preparations which are susceptible of chemical assay retain their strength undiminished for a number of years.

Unfortunately, there is a group of drugs for which no chemical assay method is commercially practicable. Most important of this group are the cardiac tonics while ergot is of scarcely less moment.

Since ergot can not be standardized by chemical means, it is easy to understand why attempts have been made to estimate its strength by observation of the effect of the drug upon lower animals. The question of deterioration being so obviously dependent upon standardization, it seems necessary to consider briefly the three methods commonly employed in the attempt to produce preparations of uniform strength.

Practically all recent investigators have observed that fresh ergot preparations have a distinct pressor activity. Dixon,[6] apparently, was the first to utilize this action to measure the therapeutic efficiency of the drug. He states: "I have found, however, that rise in blood-pressure in mammals is proportional to the effect upon the uterus." He advocates the use of rabbits, injecting the drug into the femoral vein and recording the carotid blood-pressure by means of a mercury manometer.

While Dixon's paper was very brief and incomplete, Wood and Hofer [20] have studied the pressor activity of a number of commercial samples of ergot with great thoroughness. They, too, consider that the actions upon the blood pressure and upon the uterus are parallel. They believe that: "There can be little doubt but that the increased contractions of the uterus and the vasomotor stimulation are part of a widespread effect of the drug, involving all involuntary muscle. * * * and the changes in the circulations, in the intestines, and in the uterus are but a part of one general action." This being the case, they maintain that a measure of the pressor action of ergot enables us to estimate the value of the drug as an oxytoxic.

In an earlier paper, Wood and Hofer [21] pointed out that the use of ergot need not be limited to obstetrical practice. It is certainly true that a measure of the

pressor activity of the drug upon lower animals would probably be a measure of the value of ergot as a circulatory stimulant for man, but it would seem that, in the light of both recent and early research, the objection to the use of an observation on the vasomotor action of ergot as a criterion of its oxytoxic power is decidedly a valid one.

Dale [4] has found that there is no constant relation between blood-pressure and uterine effects when the drug was administered to a monkey. "In the cat, too, there is no distinct relation between the two sets of effects; some cats in which the blood-pressure effect was comparatively small, showed marked uterine effects and vice-versa."

In examining a number of commercial preparations of ergot, Goodall [9] also found that the absence of pressor activity did not justify one in assuming absence of power to affect the uterus. He concludes: "Whereas 42 per cent. of commercial samples caused contraction of the uterus without effecting a rise of blood-pressure, the action on the uterus might be regarded as a more satisfactory test by the manufacturer."

Finally, Edmunds and Hale,[7] after making a very careful comparison, have come to the conclusion that there is no essential parallelism between the two actions.

While Goodall's work is open to adverse criticism, the results secured by such men as Edmunds, Hale, and Dale must be considered as reliable and it would seem that some investigators have acted rather hastily in establishing arbitrary standards and making wholesale condemnations of commercial preparations without reporting a single experiment in support of their statements as to the parallelism between blood-pressure and uterine effects.

The recent work of the English investigators offers an explanation as to why ergot may cause uterine contractions and yet fail to show pressor activity. Ergotoxine, para-hydroxyphenylethylamine, and B-isoamylamine excite the uterus to contractions and bring about an elevation of the blood-pressure. B-iminazolylethylamine, however, is capable of causing intense uterine tetany, and, under proper conditions, a marked *fall* of systemic blood-pressure.

While not essential, it is certainly advantageous to observe on lower animals the therapeutic action of the drug to be standardized. It seems most rational to attempt the standardization of the cardiac tonics by noting their effects upon the heart of the experimental animals; and, likewise, if the effect of ergot upon the uterus of a cat or some other suitable animal could be satisfactorily recorded, it would probably furnish a rational means for standardizing this drug. Numerous investigators have studied the action of ergot upon the uterus in various functional conditions, but, at present only two uterine methods are employed commercially.

Kehrer [13, 14] believes that the isolated uterus of a virgin cat offers an ideal object on which to standardize ergot. His method is simple in technic, but it would be extremely difficult to secure suitable animals in sufficient numbers for commercial standardization. Moreover, the light which recent chemical and physiological work has thrown upon the ergot question, enables us to see grave objections to Kehrer's method. In the first place, the important alkaloid, ergo-

toxine, in a pure state is insoluble in water, and Kehrer's test is, of necessity applicable only to the water-soluble constituents. Then, of the amines present, two have an action similar to adrenaline in causing inhibition of the non-pregnant uterus. Edmunds and Hale [7] have found that there are serious practical disadvantages in the use of the excised uterus, the chief one arising from an increasing irritability of the organ, so that the employment of a solution of ergot which was too weak to have any effect at the beginning of the experiment later on would cause distinct contractions.

Edmunds [8] was the first to make practical application of the method in which the movements of the uterus in situ are recorded. This method is obviously not simple and introduces the same theoretical disadvantages which were mentioned in discussing the isolated uterus method. Edmunds and Hale [7] find, however, that quite accurate results can be secured by perseverance and are inclined to consider this the most reliable method employed; an opinion in which Cushny [7] apparently concurs.

Finally, there is the much used and much abused cock's-comb method. As far back as 1824, Lorinser [14] noted the production of cyanosis in the comb of cocks to which ergot had been administered, and Kobert, Grünfeld,[10] and others made use of this phenomenon in studying ergot. Houghton,[11] however, was the first to make a practical application of it in attempting to standardize commercial preparations of the drug.

The cock's-comb method has, apparently, been employed by two classes of men in recent years. First, those who, believing implicity in the efficiency of it as a method of standardization, have used it blindly without carefully investigating its worth. Second, a number of investigators who seemed to have paid too little attention to the attempt to secure uniform conditions, a factor of such great importance in any method of physiological assay.

Wood and Hofer [20] are inclined to consider the cock's-comb test of no value. They point out that there is "a wide biological gap between man and the chicken and the fact that the effect studied is a toxic one." Later, they say that they have made fifty experiments upon the rooster with such unsatisfactory results as to convince them that this method is too inaccurate to be of utility.

Cronyn and Henderson [3] concur in this opinion. They do not adduce any experimental evidence of their own in support of this contention, except reports of tests by them of preparations "of the one large pharmaceutical house whose preparations are supposed to be standardized by the same method."

The objection that "a wide biological gap exists between man and chicken" can have force only with those who fail to grasp the underlying principle of standardization. We wish to measure the oxytoxic principle in ergot, and it does not matter in what way it is measured if the measure be accurate. It certainly would seem that "a wide biological gap" exists between man on the one hand and the analytical balance on the other, yet this is not considered a sound reason for discarding methods of chemical assay.

Nor does it seem to us that the fact that the action upon the cock's comb is a toxic one proves the method defective. Lethal dose methods are sometimes accurate, and moreover, it is not so evident that the cyanosis of the comb is any

more a "toxic" effect than an elevation of blood-pressure 50 millimeters or stimulation of the uterus to marked contractions.

As Edmunds and Hale [7] have pointed out, Cronyn and Henderson are in error concerning Dale's statements as to variation in individual fowls of the same variety, since Dale [5] evidently used no one variety exclusively. The fact that preparations standardized by the cock's comb method seem inert when tested by Cronyn and Henderson is obviously no reason for criticizing the method, because there is apparently no way of knowing how old these preparations were when tested the second time.

In Wood and Hofer's fifty experiments, no mention is made of the number of fowls used; of the age, breed, or method of administration. It would certainly seem advisable for them to present full data before recommending the elimination of a method which has so much in its favor.

It remained for Edmunds and Hale [7] to take the first important step toward a solution of the question as to the best method available for commercial standardization of ergot. In their paper already quoted from, a careful comparison of various methods was made, and a striking similarity was found to exist between the results of tests upon the cat's uterus in situ and of tests upon fowls.

As would be expected, varying results have been secured when the question of deterioration of ergot was investigated by different methods. It is very surprising, however, to find that when presumably the same method was used by different men, variations fully as great appear in the results.

Grünfeld [10] was, so far as we can learn, the first to report systematic observations bearing upon the keeping qualities of ergot. His tests were made upon fowls and pigs, the drug being given per os. As the result of his experiments, he concluded that ergot, either powdered or in a natural state rapidly lost its activity and was practically worthless six months after the harvest. He also draws attention to the fact that the outbreaks of "ergotism" usually occur in the summer and autumn, when the ergot is fresh.

There are several features of Grünfeld's work, however, which allow opportunities for error. In the first place, his method of administration introduces the question of absorption from the gastro-intestinal canal. Secondly, he did not secure a stock of ergot and age it himself, making tests at various intervals, *but secured small lots as he needed them for testing*, assuming that their activity was the same throughout originally. Then, he disregarded the fact that seasonal variation may play an important part in the susceptibility of animals to poisons. Thus, Hunt [12] has shown that guinea pigs and mice vary in their resistance to acetonitrile according to the season of the year, and Südmersen and Glenny [19] find that the susceptibility of guinea pigs to poisoning by diphtheria toxin shows a similar variation. In our own laboratory, we have found a seasonal variation in guinea pigs and frogs when the heart tonics are used as toxic agents. While fowls may not show this seasonal variation, still the suspicion exists. Finally, he seemed to consider the death of the fowl as the end point, often disregarding temporary bluing of the comb.

Using practically the same method, Meulenhoff [15] reached very different conclusions. He believes that ergot kept under suitable conditions retains a considerable amount of activity for as long as five years.

Kehrer,[14] using the isolated uterus method, reaches conclusions approximating Grünfeld's. He states: "From this comparative investigation, it is evident that ergot, as preserved by the apothecary, in one year detereriorates 7-8 times; in two years, about 15 times."

Wood and Hofer [20] also find that ergot rapidly loses strength. By observations upon the blood-pressure and by determination of the "sphacelotoxin content" these authors conclude:

"8. A fluidextract of ergot exposed to the air deteriorates extremely rapidly.

"9. The deteriorations of fluidextract of ergot may be much retarded by protecting it against contact with the air, but under the most favorable conditions there is a loss of strength approximating 10 per cent. a month."

If ergot loses in strength as rapidly as some of these authors believe, it is obvious that little can be expected of commercial preparations of the drug. When it is realized that Russian ergot does not reach the American manufacturers usually under six months after the harvest, and it is quite possible that it is mixed with ergot of the preceding year's harvest, it is evident that Grünfeld's statements being accepted would mean that ergot should be eliminated from the Pharmacopœia.

This state of affairs has existed for a number of years, and yet there are obstetricians who believe that satisfactory results follow the clinical use of ergot. Sharp [16] obtained a "liquid extract" of ergot which he kept under ordinary conditions for twelve months, using it, as the occasion offered, on patients in labor or who had just completed labor and in whom there was a "loss of uterine tone." He concluded that this liquid extract was apparently as active at the expiration as it was at the beginning of the year.

Wood and Hofer [20] and Crawford [2] apparently attach little value to the results of clinical observation in studying the question of the deterioration of ergot. It is certainly true that it is the tendency of some clinicians to draw conclusions from their experience in very limited numbers of cases, in which they have failed to consider adventitious circumstances. Such may have been true with Sharp, for he does not, unfortunately, give full enough details in regard to his study.

Bischofberger,[1] however, seems to have carried out his experiments with such care and thoroughness as to leave small room for questioning the results that he reports. In 1896, he tested lots of ergot, fresh, one year old, and two years old respectively, by administering the drug in powdered form to thirty patients. These patients had all been confined a short time previously and their abdominal walls were lax enough to permit of easy palpation of the uterus. In a number of instances, different lots of drug were tried upon the same patient, so that a comparison of activity could be made. He concludes: "If we take the mean of all experiments * * * it results that the activity of ergot of 1895 and 1896 is almost identical while that of 1894 * * * shows a plain, if only moderate decrease in activity." In comparing, more specifically, the results of experiments dealing only with fresh (1896) ergot and that one year old, he was able to see in the year-old specimen slightly less activity than in the fresh specimen.

As was said, Bischofberger's results seem entitled to acceptance, but, like Grünfeld he makes the mistake of assuming the same initial activity for his three

lots of ergot. It is quite possible that his older ergot may have been considerably stronger when fresh than was the ergot of 1896, so his inferences as to the rate of deterioration are not justified. One point, however, seems established: namely, that ergot two years old has a decided influence upon the uterus of a woman when the drug is administered per os.

To study properly the question of the deterioration of ergot, it is necessary to secure a lot of the drug and determine its strength in reference to a definite standard, and then test it at stated intervals thereafter. Edmunds and Hale [7] seem to have shown that the cock's comb method, carried out with proper precautions, is a satisfactory test method, and they suggest ergotoxine, a definite chemical compound, as a standard. An investigation of this nature is now being carried out in our laboratory, but it seemed to us that information of value could be obtained by examining fresh and old preparations of ergot with a view to determining their relative activity. Unfortunately, in our earlier work of the routine testing of ergot, we simply determined that the preparations tested were sufficiently active to cause bluing of the comb when injected intramuscularly in the dose of 1 cc. per kilo fowl, so the possibility remains that the older preparations were originally more active than the recent ones. We can not believe that this will be the case throughout the large number of samples tested, but would rather think that the more recent samples possess greater activity than those made several years ago, owing to the greater care in manufacture.

The samples were, at about the time when the preparation was made, placed in small one-ounce, amber bottles. Ordinary cork stoppers were used, the samples were stored on shelves in a well-lighted room and subjected to wide variations in temperature; in fact, they were kept under conditions similar to those in many retail pharmacies, except that for practically all of the samples the stoppers had not been removed during the time they remained in storage. In the few instances where the stoppers had been removed it was for the withdrawal of a small portion of the liquid for examination and occurred only once or twice in any instance.

Blood pressure experiments were carried out on dogs, using, in most cases, morphine anæsthesia, supplanted by ether for operation—the method proposed by Wood and Hofer.[20] The morphine was given subcutaneously one-half to one hour before the operation was begun. At the end of this period the animal was etherized, the common carotid artery was attached to a mercury manometer, and last the trachea was connected with the artificial respiration apparatus. After allowing the animal about ten minutes to recover from the ether, and when a constant blood pressure record had been secured, the injection was made. Artificial respiration was used in all experiments except one.

The systolic pressure (as recorded by the ordinary mercury manometer) was measured. Measurements were made in millimeters, and fractions of millimeters were dropped.

Table A gives the actual elevations of blood pressure at the beginning of the experiments, and for the several periods following. Table B gives the changes in pressure after the injection of the drug from that at the beginning of the experiments.

(+ = above, — = below.)

TABLE A.

Blood Pressure Records on Dogs.

Date of test.	No. of preparation.	Date when made.	Sex of dog.	Wt. of dog in Kgms.	Anaesthetic and amount given per Kgm. of body weight. Stated in fraction of gram.	No. of injection.	Dose per Kgm. stated in fractions of a c.c.	Blood pressure when inj. was made.	Initial pressure (2-3 min. after inj.)	Pressure 5 min. after injection.	10 min. after.	15 min. after.	20 min. after.
5-29-11	421352	5-29-11	M	6.6	Morph. S. 0.008	1	0.10	136	170	169	172	164	161
						2	0.15	160	178	168	158	150	
3-29-11	415330	3-26-11	M	17.0	Morph. S. 0.006	1	0.08	132	159	157	151	141	151
						2	0.16	150	164	173	172	174	180
2- 8-11	411173	2- 8-11	M	9.0	Morph. S. 0.005	1	0.08	145	166	171	160		
						2	0.15	160	175	168			
2- 7-11	409578	2- 7-11	M	7.2	Morph. S. 0.009	1	0.08	140	173	170	167		
						2	0.15	166	204	164			
12-21-10	406559	12-21-10	M	18.0	Morph. S. Atrop. S.	1	0.14	163	234	226	215	200	190
12-18-10	406556	12-15-10	M	8.8	Morph. S. 0.010 Atrop. S. 0.00014	1	0.05	114	218	214	187	187	166
11-18-10	401649	11-18-10	F	10.0	Morph. S. 0.0064 Atrop. S. 0.00017	1	0.08	124	174	174	180	160	148
10-28-10	401646	10-28-10	M	13.6	Morph. S. Atrop. S.	1	0.10	110	210	194	203	150	129
6-28-10	386647	6-28-10		12.0	Morph. S. Acetoform (No ether.)	1	0.08	70	132	118	152	152	148
5-29-11	320659	9- 8-08	M	7.6	Morph. S. 0.008 Acetoform .025	1	0.10	128	176	191	189	172	160
5-14-11	316825	8-24-08	M	6.3	Morph. S. 0.006	1	0.10	159	173	179	188	200	200
4- 3-11	310299	6- 7-08	M	18.6	Morph. S. 0.007	1	0.08	124	151	120	129	141	140
						2	0.15	140	153	155	150	147	149
3-27-11	306389	5- 3-08	F	9.0	Morph. S. 0.007	1	0.08	134	167	165	146	139	138
						2	0.15	137	177	161	158	146	142
3-27-11	306389	5- 3-08	M	11.8	Morph. S. 0.008	1	0.08	132	165	213	Clot		152
3-23-11	277009	4-29-07	F	5.7	Morph. S.	1	0.08	95	135	115	122	132	137
						2	0.15	137	160	137	146	122	120
3-23-11	277008	4-29-07	F	12.2	Morph. S. 0.008	1	0.08	126	Clot	163	168	167	160
3-22-11	277007	4-23-07	M	15.4	Morph. S. 0.007	1	0.08	174	201	138	207	216	148
6-24-11	272572	3-12-07	M	15.8	Morph. S. 0.0037 Curare 0.0026	1	0.10	118	149	128	111	106	102
						2	0.15	101	164	159	151	141	132
6-23-11	272572	3-12-07	F	18.4	Morph. S. 0.006 Atrop. S. 0.0001 Curare 0.0015	1	0.10	148	240	232	268	193	187
						2	0.15	170	242	222	199	188	184
5- 5-11	261770	2-26-07	M	22.0	Morph. S. 0.150	1	0.10	90	127	110	112	110	110
						2	0.15	107	116	116	111	110	111
6-23-11	261766	12-22-06	M	20.0	Morph. S. 0.006 Curare 0.0015	1	0.10	142	160	167	165	157	153
						2	0.15	154	182	192	187	177	
6- 2-11	261766	12-22-06	F	7.1	Morph. S. 0.0021*	1	0.10	146	178	178	171	166	167
						2	0.15	169	188	193	181	177	176
4- 4-11	255660	8-28-06	M	9.0	Morph. S. 0.007	1	0.08	146	166	152	154	146	140
						2	0.15	140	176	150	137		
4-12-11	254053	8-16-06	M	19.5	Morph. S. 0.010	1	0.10	122	181	170	140	136	130
4- 5-11	251604	8- 3-06	M	8.6	Morph. S. 0.006	1	0.10	92	118	119	119	118	122
						2	0.15	124	135	135	141	140	140
4- 5-11	251604	8- 3-06	F	4.3	Morph. S. 0.0035	1	0.10	112	132	106	113	114	109
4- 5-11	251603	8-28-06	M	7.2	Morph. S. 0.006	1	0.10	150	177	149	160	169	169

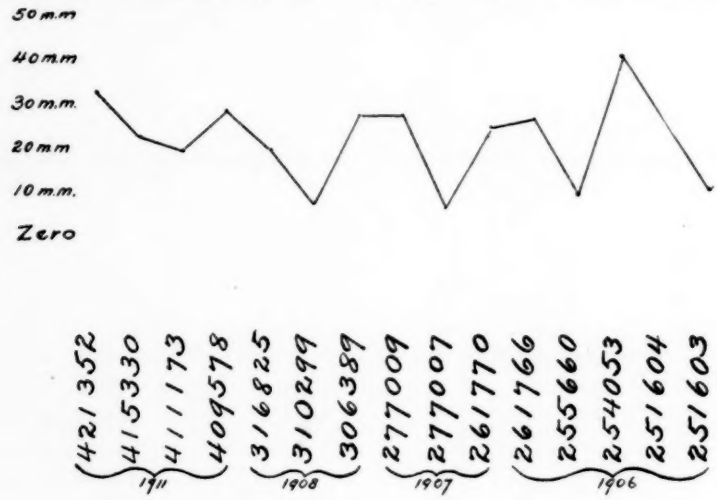
* Natural respiration.

TABLE B.

No. of preparation.	Age. (Fractions of months were dropped.)	Anaesthetic.	No. of injection.	Initial change.	Change at end of 5 min.	10 min.	15 min.	20 min.	Average change of initial, 5 and 10 min. periods.
421352	Fresh	Morph. S.	1	+34	+32	+36	+28	+25	+34
			2	+42	+32	+22	+14		+32
415330	Fresh	Morph. S.	1	+27	+25	+19	+9	+19	+24
			2	+34	+41	+40	+42	+48	+38
411173	Fresh	Morph. S.		+21	+26	+15			+21
409578	Fresh	Morph. S.		+33	+30	+27			+30
406559	Fresh	Morph. S. Atrop. S.		+71	+63	+52	+37	+27	+62
406556	Fresh	Morph. S. Atrop. S.		+104	+100	+73	+73	+52	+92
401649	Fresh	Morph. S. Atrop. S.		+50	+50	+56	+36	+24	+52
401646	Fresh	Morph. S. Atrop. S.		+100	+84	+93	+40	+19	+92
386647	Fresh	Morph. S. Acetoform (No ether)		+62	+48	+82	+82	+78	+64
320659	32 mo.	Morph. S. Acetoform		+48	+63	+61	+44	+32	+57
316825	32 mo.	Morph. S.		+14	+20	+29	+41	+41	+21
310299	33 mo.	Morph. S.	1	+27	−4	+5	+17	+16	+9
			2	+29	+31	+26	+23	+25	+29
306389	34 mo.	Morph. S.	1	+33	+31	+12	+15	+4	+29
			2	+43	+27	+24	+12	+8	+31
306389	34 mo.	Morph. S.		+33	+81	Clot	Clot	+20	
277009	46 mo.	Morph. S.	1	+40	+20	+27	+37	+42	+29
			2	+65	+42	+51	+27	+25	+53
277008	46 mo.	Morph. S.		Clot	+37	+42	+41	+34	
277007	47 mo.	Morph. S.		+27	−36	+33	+42	−26	+8
272572	51 mo.	Morph. S. Curare		+31	+10	−7	−12	−16	+11
				+46	+41	+33	+23	+14	+40
272572	51 mo.	Morph. S. Atrop. S. Curare	1	+92	+84	+120	+45	+39	+99
			2	+94	+74	+51	+40	+36	+73
261770	50 mo.	Morph. S.	1	+37	+20	+22	+20	+20	+26
			2	+26	+26	+21	+20	+21	+24
261766	54 mo.	Morph. S. Curare	1	+18	+25	+23	+15	+11	+22
			2	+40	+50	+45	+35		+45
261766	53 mo.	Morph. S.*	1	+32	+32	+25	+20	+21	+30
			2	+42	+47	+35	+31	+30	+41
255660	55 mo.	Morph. S.	1	+20	+6	+8	0	−6	+11
			2	+30	+4	−9			+8
254053	55 mo.	Morph. S.		+57	+48	+18	+14	+8	+42
251604	56 mo.	Morph. S.	1	+26	+27	+27	+26	+30	+27
			2	+43	+43	+49	+48	+48	+45
251604	56 mo.	Morph. S.		+20	−6	+1	+2	−3	+5
251603	55 mo.	Morph. S.		+27	−1	+10	+19	+19	+12

* Natural respiration.

The average rise for the first three periods, in those experiments where morphine alone was used (with ether for operation), may be seen in plotted curve No. 1. The dots connected by lines represent pressures obtained from first



CURVE NO. 1.

injections. The separate dots represent pressures obtained from second injections (where second injections were made), and show the increase or decrease in pressure from that following the first injection. The vertical figures are the serial numbers of the fluidextracts. The dates at the bottom show when the preparations were made.

Five blood pressure experiments were carried out on spinal preparations, prepared according to the directions of Sherrington.[17] Data and results may be seen in Table C.

TABLE C.

Blood Pressure Records on Spinal Preparations.

Date of test.	No. of preparation.	When made.	Animal.	Wt. in Kgms.	No. of injection.	Dose of drug per Kgm. in fractions of a c.c.	Blood pressure at beginning of inj.	Blood pressure 1-3 min. after injection.	5 min. after.	10 min. after.	15 min. after.	20 min. after.	Average rise of first three periods.
4- 5-11	251603	8-28-06	Cat	3.5	1	0.10	104	161	167	165	152	134	+60
3-25-11	277007	4-23-07	Cat	2.6	1	0.08	130	136	Clot		141	132	
					2	0.16	132	162	168				
3-18-11	306389	5- 3-08	Cat	2.9	1	0.15	120	159	138	122	113		+20
					2	0.15	104	152	129	100			
5-14-11	316825	8-24-08	Cat	2.6	1	0.10	100	118	110				
					2	0.10	96	139	125	88			+21
					3	0.10	87	114	86				
3-10-11	411176	2- 8-11	Dog	5.6	1	0.08	138	153	158	151	158		+16

The results secured by the blood-pressure experiments are surprising in view of the experience of Wood and Hofer. As may be seen from the table and from

the chart, no definite information could be obtained by this method, for while some of the old samples failed to have the desired pressor activity, others appeared to be very active in this respect. In most of the experiments we followed the procedure of Wood and Hofer and are at a loss to account for the difference in the results.

Cock's-comb tests were carried out on stock samples of fluidextract (previously described). White Leghorn fowls from 7-10 months old were used except in a few cases where otherwise mentioned. All doses were calculated per kgm. of body weight. The drug was injected into the breast muscles and the fowls were observed at intervals for one and a half hours.

Fowls having well developed combs, of a deep red color and thickly covered with papillæ, have seemed to be the most susceptible, and will, nearly all of them, show the characteristic bluing of the comb provided the drug has been given in sufficient quantity.

Occasionally, however, fowls are found which will not show a bluing of the comb even after receiving large doses of the drug. In such chickens a blanching of the comb usually results, although in others there may be almost no change in color. Fowls of this kind were excluded. Some of those used may have partaken of this tendency in a slight measure. Certainly, some seemed more resistant than others. In some, considerable blanching of the comb would precede the bluing, while in others the comb would gradually become darker until a distinct bluing was visible Of the fowls used, we made no selection for any given tests, but simply injected them in the order they happened to be brought to the laboratory by the assistant.

Tables D, E, and F show the results secured. In table D the samples were tested in a dose of 0.75 c.c.; in table E all samples failing to cause any bluing when administered in a dose of 0.75 c.c. were given in a dose of 1 c.c.; in table F those failing to cause bluing in 1 c.c. were administered in 1.5 c.c. per kgm.

The different results are designated in these tables as follows:

Marked bluing = Where larger part of comb was very distinctly blue.

Very faint bluing = Where the tips of points and back tip were very faintly though distinctly blue.

Faint bluing = A stage between the two preceding.

Darkening = Where comb seemed darkened but showed no distinct bluing.

Blanching = Where blanching occurred without any darkening or bluing.

TABLE D.

Tests on Stock Samples of F. E. Ergot by the Cock's Comb Method, Using White Leghorns. Dose per Kgm. of body weight=0.75 cc.

Date of test.	No. of preparation.	When made.	No. of fowl.	Wt. in Kgms.	Result.	
11-14-11	434060	11-14-11	203	1.676	Marked bluing	+
10-20-11	434057	10-20-11	194*	1.849	Faint bluing	+
10-10-11	429539	9-23-11	183	1.498	No coloring	O
10-28-11	429539	9-23-11	191*	1.965	No coloring	O
11- 7-11	429539	9-23-11	195*	1.735	Faint bluing	+
11- 8-11	429539	9-23-11	186	1.511	Faint bluing	+
11- 7-11	425456	9- 4-11	194*	1.909	Blanching	O
11- 8-11	425456	9- 4-11	187	1.250	No coloring	O

* Fowl at least one and a half years old.
+ Where bluing in any degree was obtained.
O No noticable bluing.

TABLE D.—(Continued.)

Date of test.	No. of preparation.	When made.	No. of fowl.	Wt. in Kgms.	Result.	
10-10-11	425453	8- 8-11	172	1.224	Marked bluing	+
10-10-11	421335	7-10-11	184	1.253	Marked bluing	+
10-10-11	421352	6-11-11	181	1.231	Faint bluing	+
10-11-11	415333	5-18-11	169	1.293	Marked bluing	+
10-11-11	415330	4-27-11	171	1.207	Marked bluing	+
10-11-11	411176	3-18-11	173	1.464	Marked bluing	+
10-11-11	409575	2-10-11	168	1.105	Very faint bluing	+
10-28-11	409575	2-10-11	192*	1.912	Very faint bluing	+
11- 7-11	409575	2-10-11	197*	1.709	Darkening	O
10-11-11	406559	1-19-11	182	1.412	Faint bluing	+
10-13-11	401649	12-15-10	187	1.425	Faint bluing	+
10-13-11	401646	11-22-10	186	1.420	Marked bluing	+
10-13-11	397483	10-24-10	194	1.194	Marked bluing	+
10-16-11	393872	9- 9-10	181	1.189	No coloring	O
10-28-11	393872	9- 9-10	192*	1.712	Very faint bluing	+
10-16-11	393869	8-19-10	172	1.318	Marked bluing	+
10-16-11	386647	7-17-10	184	1.146	Marked bluing	+
10-16-11	382975	6- 4-10	183	1.438	Faint bluing	+
10-17-11	382972	5- 6-10	186	1.579	Marked bluing	+
10-17-11	380930	4-18-10	182	1.378	Faint bluing	+
10-17-10	375495	3- 5-10	173	1.458	Faint bluing	+
10-17-10	375491	2-19-10	171	1.151	Very faint bluing	+
10-18-11	375488	1-28-09	187	1.400	Very faint bluing	+
10-18-11	369507	12-10-09	190	1.218	Very faint bluing	+
10-18-11	361919	11-14-09	189	1.339	Very faint bluing	+
10-18-11	359337	9-12-09	188	1.231	Very faint bluing	+
10-21-11	353756-7-8	8-21-09	185	1.106	Darkening	+
10-30-11	353756-7-8	8-21-09	189	1.385	No coloring	+
11-11-11	353756-7-8	8-21-09	198	1.565	No coloring	+
10-21-11	353728	7-10-09	189	1.327	Very faint bluing	+
10-21-11	351522	6-14-09	172	1.304	Very faint bluing	+
10-21-11	347870	5-13-09	188	1.265	Marked bluing	+
10-21-11	340670	4-10-09	173	1.341	Darkening	O
10-30-11	340670	4-10-09	188	1.264	Darkening	O
10-21-11	340668	3-22-09	190	1.234	Very faint bluing	+
10-21-11	337592	2-27-09	187	1.380	Darkening	O
10-21-11	337588	1-30-09	186	1.475	Darkening	O
10-26-11	330033	12-23-08	183	1.480	Darkening	O
10-26-11	323359	11-23-08	173	1.408	Very faint bluing	+
10-26-11	323356	10-19-08	186	1.423	Faint bluing	+
10-26-11	320661	9-20-08	185	1.100	Darkening	O
10-26-11	316822	8- 3-08	190	1.269	Darkening	O
10-26-11	316821	7-19-08	188	1.292	Faint bluing	+
10-26-11	310300	6- 7-08	187	1.311	Darkening	O
10-26-11	310298	5-15-08	189	1.380	Faint bluing	+
10-28-11	306387	4-17-08	196o	1.983	Darkening	O
10-30-11	306387	4-17-08	186	1.372	No coloring	O
10-28-11	303460	3-15-08	197o	1.764	No coloring	O
10-30-11	303460	3-15-08	185	1.065	No coloring	O
10-30-11	300827	2- 4-08	183	1.461	No coloring	O
10-30-11	300824	1- 4-08	187	1.249	No coloring	O
10-30-11	294875	12- 6-07	169	1.085	Very faint bluing	+
10-30-11	294874	11-23-07	172	1.306	No coloring	O
10-30-11	291699	10-11-07	173	1.319	No coloring	O
10-30-11	289208	9-13-07	190	1.200	No coloring	O
10-30-11	286684	8-17-07	192*	1.822	No coloring	O
10-30-11	286682	7-14-07	191*	1.804	No coloring	O
10-30-11	280986	6-23-07	193*	1.564	No coloring	O
11- 4-11	277010	5-23-07	187	1.291	Darkening	O
11- 4-11	277009	4-29-07	173	1.329	No coloring	O
11- 4-11	272572	3-12-07	188	1.233	Darkening	O
11- 4-11	261770	2-26-07	190	1.114	Darkening	O
11- 4-11	261766	12-22-06	189	1.364	Darkening	O
11- 4-11	255664	10- 8-06	172	1.295	No coloring	O
11- 4-11	254053	8-16-06	183	1.479	No coloring	O
11- 4-11	251604	8- 3-06	186	1.443	No coloring	O

o Brown Leghorn at least one and one-half years old.
* Fowl at least one and one-half years old.
+=as above.
O=as above.

TABLE E.

Tests on Stock Samples of F. E. Ergot by the Cock's Comb Method, Using White Leghorns. Dose per Kgm. of body weight=1 c.c.

Date of test.	No. of preparation.	When made.	No. of fowl.	Wt. in Kgms.	Result.	
11-11-11	425456	9- 4-11	182	1.394	Marked bluing	+
11-11-11	409575	2-10-11	173	1.298	Marked bluing	+
11-11-11	353756-7-8	8-21-09	198	1.565	No coloring	O

TABLE E.—(Continued.)

Date of test.	No. of preparation.	When made.	No. of fowl.	Wt. in Kgms.	Result.
11-11-11	353756-7-8	8-21-09	186	1.455	Very faint bluing +
11- 7-11	340670	4-10-09	192*	1.886	Very faint bluing +
11-11-11	340670	4-10-09	188	1.229	Marked bluing +
11-11-11	337592	2-27-09	187	1.218	Darkening O
11-11-11	337588	1-30-09	189	1.311	Marked bluing +
11-11-11	330033	12-23-08	185	1.089	Darkening O
11-11-11	320661	9-20-08	172	1.216	Very faint bluing +
11-11-11	316822	8- 3-08	190	1.117	Marked bluing +
11-11-11	310300	6- 7-08	181	1.298	Very faint bluing +
11-16-11	306387	4-17-08	182	1.423	Darkening O
11-16-11	303460	3-15-08	185	1.145	Darkening O
11-16-11	300827	2- 4-08	190	1.060	Faint bluing +
11-16-11	300824	1- 4-08	187	1.163	Darkening O
11-16-11	294874	11-23-07	188	1.173	Faint bluing +
11-16-11	291699	10-11-07	183	1.504	Blanching O
11-16-11	289208	9-13-07	181	1.276	Darkening O
11-16-11	286684	8-17-07	186	1.452	Faint bluing +
11-16-11	286682	7-14-07	189	1.262	Marked bluing +
11-16-11	280986	6-23-07	191*	1.567	Very faint bluing +
11-16-11	277010	5-23-07	173	1.218	Very faint bluing +
11-16-11	277009	4-29-07	172	1.293	Darkening O
11-16-11	272572	3-12-07	192*	1.687	Blanching O
11-18-11	261770	2-26-07	200	1.376	Blanching O
11-18-11	261766	12-26-06	199	1.793	Very faint bluing +
11-18-11	255664	10- 8-06	219	1.351	Darkening O
11-18-11	254053	8-16-06	220	1.390	Darkening O
11-18-11	251604	8- 3-06	198	1.715	Darkening O

* Fowl at least one and a half years old.
+=Bluing in any degree.
O=No noticable bluing.

TABLE F.

Tests on Stock Samples of F. E. Ergot by the Cock's Comb Method, Using White Leghorns. Dose per Kgm. of body weight=1.5 c.c.

Date.	No. of preparation.	When made.	No. of fowl.	Wt. in Kgms.	Result.
11-22-11	337592	2-27-09	188	1.210	Very faint bluing +
11-22-11	330033	12-23-08	187	1.206	Darkening O
11-22-11	306387	4-17-08	220	1.423	Very faint bluing +
11-22-11	303460	3-15-08	200	1.359	Very faint bluing +
11-22-11	300824	1- 4-08	202	1.522	Very faint bluing +
11-22-11	291699	10-11-07	173	1.260	No coloring O
11-22-11	289208	9-13-07	189	1.297	Darkening O
11-22-11	277009	4-29-07	186	1.532	Very faint bluing +
11-22-11	272572	3-12-07	182	1.430	No coloring O
11-22-11	261770	2-26-07	190	1.089	Darkening O
11-22-11	255664	10- 8-06	181	1.298	Very faint bluing +
11-22-11	254053	8-16-06	172	1.366	Very faint bluing +
11-22-11	251604	8- 3-06	183	1.568	No coloring O

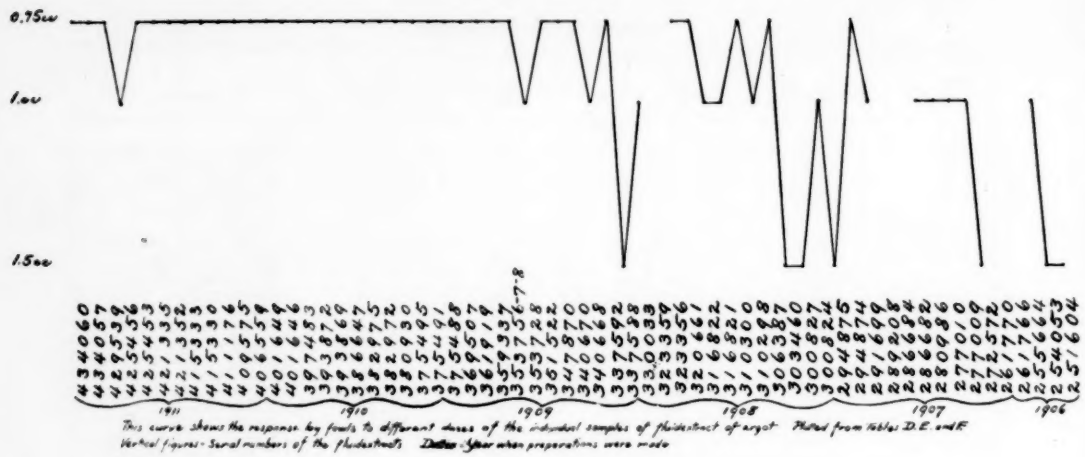
+=Bluing in any degree.
O=No noticable bluing.

Curve 2 was plotted from the results given in Tables D, E, and F and shows the response of fowls to the different doses of the fluidextracts.

The gaps are due to the fact that preparations corresponding to those numbers did not cause bluing in a dose of 1.5 c.c. per kilo, that being the largest dose used in this series.

TESTS OF MIXED SAMPLES MADE FROM STOCK SAMPLES BY THE COCK'S COMB METHOD, USING WHITE LEGHORNS.

Sixty of the stock lot samples previously tested individually were divided into five groups of twelve each. A mixed sample was made from each group. Since the individual samples were taken, one for each month, extending back over



This curve shows the response by fowls to different doses of the individual samples of fluidextract of ergot. Plotted from tables D, E, and F. Vertical figures - Serial numbers of the fluidextracts. Dates - Year when preparations were made.

CURVE NO. 2.

approximately sixty months, each mixed sample represented the lots made during a given year. The sample from the oldest group was labeled 1, the next 2, 3, 4, and 5 respectively. Data and results may be seen in table G, or plotted in curve 3.

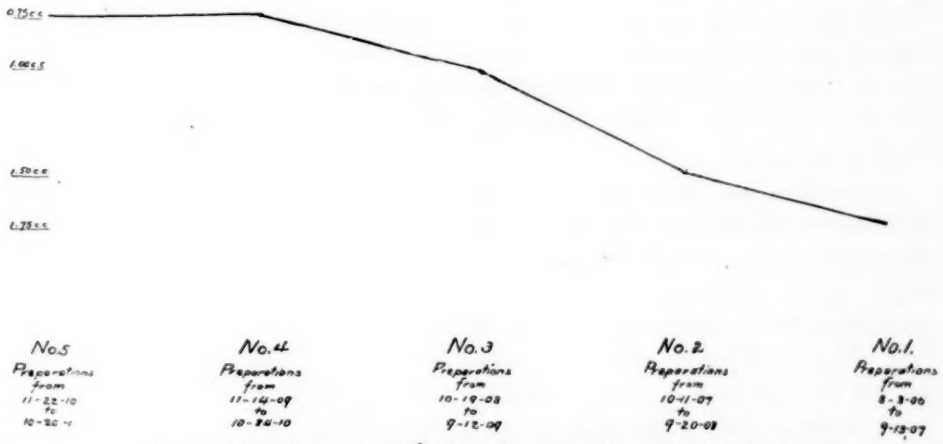
TABLE G.

Date of test.	Sample and age.	No. of fowl.	Wt. in Kgms.	Dose per Kgm.	Result.	
11-14-11	1.	202	1.469	0.75 c.c.	No coloring	O
11-22-11	Preparations	198	1.704	0.75 c.c.	Blanching	O
11-18-11	from	233	1.865	1.00 c.c.	Darkening	O
12- 5-11	8- 3-06	199	1.953	1.25 c.c.	Very faint bluing	+
12- 5-11	to	224	1.368	1.25 c.c.	Darkening	O
12- 9-11	9-13-07	223	1.850	1.25 c.c.	Darkening	O
11-28-11	inclusive	226	1.586	1.5 c.c.	Faint bluing	+
12-12-11		202	1.558	1.5 c.c.	Darkening	O
12-12-11		225	1.793	1.5 c.c.	No coloring	O
12-21-11		201	1.450	1.5 c.c.	Very faint bluing	+
12-21-11		237	1.437	1.5 c.c.	No coloring	O
12-21-11		220	1.475	1.63 c.c.	Very faint bluing	+
12-21-11		187	1.392	1.63 c.c.	Very faint bluing	+
12-21-11		226	1.500	1.63 c.c.	Darkening	O
12-15-11		203	1.796	1.75 c.c.	Very faint bluing	+
12-21-11		204	1.371	1.75 c.c.	Faint bluing	+
11-14-11	2.	201	1.507	0.75 c.c.	Darkening	O
11-14-11	Preparations	226	1.726	0.75 c.c.	Darkening	O
11-18-11	from	222	1.396	1.00 c.c.	Darkening	O
12- 6-11	10-11-07	223	1.907	1.00 c.c.	Darkening	O
12- 6-11	to	198	1.725	1.00 c.c.	Blanching	O
12- 9-11	9-20-08	219	1.397	1.00 c.c.	No coloring	O
12-12-11	inclusive	204	1.478	1.25 c.c.	Very faint bluing	+
12-15-11		202	1.418	1.25 c.c.	Faint bluing	+
12-15-11		226	1.514	1.25 c.c.	Darkening	O
12-28-11		222	1.398	1.50 c.c.	Faint bluing	+
12-12-11		199	1.916	1.50 c.c.	Very faint bluing	+
12-12-11		237	1.541	1.50 c.c.	Very faint bluing	+
12- 6-11	3.	200	1.348	0.50 c.c.	Darkening	O
12- 6-11	Preparations	202	1.559	0.63 c.c.	Darkening	O
12- 9-11	from	226	1.558	0.63 c.c.	No coloring	O
11-14-11	10-19-08	200	1.418	0.75 c.c.	Very faint bluing	+
11-22-11	to	202	1.721	0.75 c.c.	Faint bluing	+
12-12-11	9-12-09	200	1.493	0.75 c.c.	Darkening	O
12-12-11	inclusive	226	1.550	0.75 c.c.	No coloring	O
12-15-11		223	1.841	0.87 c.c.	No coloring	O
12-15-11		224	1.384	0.87 c.c.	No coloring	O
12-21-11		225	1.764	0.87 c.c.	Darkening	O
12-21-11		223	1.878	0.87 c.c.	Darkening	O
12-21-11		182	1.689	0.87 c.c.	Very faint bluing	+
11-18-11		201	1.477	1.00 c.c.	Faint bluing	+
12-21-11		219	1.327	1.00 c.c.	Very faint bluing	+
12-21-11		224	1.419	1.00 c.c.	Very faint bluing	+

TABLE G.—(Continued.)

Date of test.	Sample and age.	No. of fowl.	Wt. in Kgms.	Dose per Kgm.	Result.
12- 6-11	4.	226	1.576	0.5 c.c.	No coloring O
12- 6-11	Preparations	225	1.806	0.5 c.c.	No coloring O
12- 9-11	from	224	1.355	0.63 c.c.	Darkening O
12-15-11	11-14-09	225	1.739	0.63 c.c.	Very faint bluing +
12-15-11	to	187	1.333	0.63 c.c.	Darkening O
12-21-11	10-24-10	229	1.193	0.63 c.c.	Very faint bluing +
12-21-11		199	1.908	0.63 c.c.	No coloring O
12-21-11	inclusive	199	1.738	0.75 c.c.	Very faint bluing +
11-22-11		225	1.933	0.75 c.c.	Very faint bluing +
11-18-11		221	1.566	1.00 c.c.	Marked bluing +
12- 6-11	5.	203	1.775	0.5 c.c.	No coloring O
12- 6-11	Preparations	219	1.387	0.5 c.c.	No coloring O
12- 9-11	from	225	1.744	0.63 c.c.	Darkening O
12-15-11	11-22-10	201	1.429	0.63 c.c.	No coloring O
12-15-11	to	219	1.367	0.63 c.c.	No coloring O
12-21-11	10-20-11	186	1.669	0.63 c.c.	Very faint bluing +
12-21-11	inclusive	228	1.465	0.63 c.c.	Very faint bluing +
11-14-11		198	1.760	0.75 c.c.	Very faint bluing +
11-22-11		201	1.473	0.75 c.c.	Faint bluing +
11-18-11		203	1.647	1.00 c.c.	Marked bluing +

From an examination of Table D, it is seen that, with a few exceptions, the samples back to April 10, 1909 (that is, two years and six months), seem to cause bluing of the comb in a dose of 0.75 c.c. per kgm. From that time back, of the 31



This curve shows the amount of the different mixed samples of fluidextract of ergot required to produce bluing of the cock's comb Curve platted from Table G.

CURVE NO. 3.

samples tested, only six had any visible effect upon the comb when given in this dose.

From Table E, it may be seen that, with quite a number of exceptions, there is no distinct evidence of diminished strength until April 29, 1907 (sample No. 277009), or about four years and six months.

Table F does not give information of any value, because the sample five years old gave as much bluing in the dose of 1.5 c.c. as did the one only two years old.

The results given in Table G are, we believe, the ones of most value. By mixing

together all of the samples of one year, variations of individual samples become less important and the resulting diminution in the number of preparations enables fairly accurate comparison of strength.

For mixture No. 1, we may put the effective dose at 1.75 c.c.; or, may say that a mixture of preparations about four and one-half years old causes bluing of the cock's comb when given in that dose. Mixture No. 2 approximately three and one-half years old, produced about the same effect when given in a dose of 1.5 c.c. Mixture No. 3, about two and one-half years old, produces bluing in a dose of 1.00 c.c.; while mixture No. 4, about one and one-half years old, and mixture No. 5, about six months old, were effective in a dose of 0.75 c.c. The last two mixtures showed an almost identical degree of activity, so far as we could determine, and it is exceptional to find a fresh preparation that will cause bluing in a smaller dose than this. Edmunds and Hale* find that 1 c.c. of a fresh fluidextract of ergot per kgm. fowl should cause distinct bluing of the comb, and suggest that 5 mgms. of ergotoxine phosphate be considered equivalent to 2 c.c. of such a fluidextract. On our chickens, we have found that our effective dose of 0.75 c.c. is about equivalent to 1.87 mgms. of ergotoxine phosphate; or, in other words, samples of fluidextract of ergot two years old possess an activity approximately equal to this provisional standard.

The mixture two and one-half years old had to be given in a dose 33 1-3 per cent. larger; the three and a half year old mixture had to be given in a dose 100 per cent. larger; while the four and one-half year old mixture was effective only in a dose about 133 per cent. larger than the mixtures made up of comparatively fresh preparations.

As we have said, inferences as to the exact rate of deterioration can be drawn from these experiments only on the assumption of an initial activity the same for all preparations. This is, of course, not justified, but it does seem to us that the large number of preparations examined affords ground for making approximations as to the keeping quality of the fluidextract of ergot. It would seem to us that, if the cock's-comb method is considered reliable, preparations of the fluidextract of ergot kept in well-stoppered, small vials under ordinary conditions will retain their activity practically unaltered for at least two or two and one-half years, but from this time on there is an appreciable deterioration which, at the end of four or five years, would necessitate the administration of more than double the dose in order to secure the same effect as from a fresh preparation. It is probable that deterioration is taking place from the time of manufacture, but in the samples examined by us, this did not become evident under two and a half years.

It has been frequently suggested that commercial preparations of ergot should bear the date when tested, but it seems to us that such procedure would be of value only when information is possessed concerning the probable rate of deteri-

* These authors do not state distinctly that the dose was per kgm., but from the context we assume this.

oration. The experiments which we report are suggestive, but we hope that others will take up the investigation so that a definite conclusion can be reached.

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THE BACON BILL.*

GEO. F. PAYNE.

"To promote the efficiency of the Medical Department of the United States Army.

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Hospital Corps of the United States Army shall hereafter be known and designated as the Medical Corps, shall constitute the enlisted personnel of the Medical Corps now authorized by law, and shall consist of sergeants major, at seventy-five dollars per month; sergeants, first class, at sixty-five dollars per month; sergeants, at thirty-six dollaars per month; corporals, at twenty-four dollars per month; cooks, at thirty dollars per month; privates, first class, at twenty-one dollars per month; and privates, at sixteen dollars per month, with such increase for length of service and other allowances as are or may hereafter be established by law."

The purpose of this Bill is to remedy as far as possible the present and long standing condition which makes it actually impossible to secure for the Medical Department the class of men necessary for the efficient performance of duties connected with the care of the sick and the sanitary service in general. Inasmuch as all branches of the Army are practically in competition with each other for men possessing the necessary qualifications, it is obvious that efficiency can only be maintained by offering equal opportunities for advancement in all branches, or, as in this case, by a compensatory increase in the rate of pay in those branches

*Indexed as S. 5725, and as H. R. 22263, 62d Congress, 2d Session.

in which the non-commissioned grades are relatively few in number as compared with other corps.

Prior to the Act of May 11, 1908, the privates first class of the Hospital Corps received $5.00 per month more than privates of the line of the Army. It appears to have been recognized by Congress that the work of the Hospital Corps was not only arduous and confining, but that, involving as it does the care of the sick and wounded, the compounding of drugs, etc., it was extremely technical and responsible, and that to secure the class of men who met the requirements indicated, it was necessary to offer some better inducement than the pay of a private soldier. The Act of May 11, 1908, gave no increase in pay to the privates first class, Hospital Corps, while the pay of other soldiers was increased from *20 to 80 per cent. with the sole exception of the Hospital Corps.* The Hospital Corps constitutes a part of what are known as the "Staff Departments of the Army." In all of these Departments the privates first class, it is true, receive also $18.00 per month. In all of them, however, about 12 per cent. of the total strength have the grade of corporal at $24.00 per month on first enlistment, while in the Hospital Corps the proportion of corporals to the total strength is but 1.42 per cent. Plainly therefore the opportunity for advancement for the privates of this Corps are about ten times less than in other staff departments. In actual figures the difference against the Hospital Corps amounts to the loss of 400 corporals; there being in this Corps but 50 corporals (or 1.42% of its total), while on the basis which prevails in other staffs—the Signal Corps for example (12.88%)—there would be 450. It requires no elaborate argument to show that the loss of promotion which would be possible with 450 corporals has a most serious effect on the class of men who enlist for the lower grades—those of private and private first class. To a great extent the Hospital Corps is now compelled to accept men who realize their inability to make good in other branches where the prospects of advancement being so much better, there is a far wider field from which to make a selection. It follows therefore that unless legislation be enacted which will give to the Hospital Corps the same proportionate number of corporals as in other corps, that there must be some compensatory increase in the pay of the privates first class. The increase requested is $3.00 per month, which will make the pay of this grade $21.00 instead of $18.00. It is observed, in passing, that the farrier, who, under the direction of the veterinary surgeon, cares for sick mules and horses, now receives $21.00, a higher rate than that now paid the Hospital Corps privates, first class, who, under the direction of the medical officer, cares for the sick soldier or officer. In addition to this, there are numerous ratings and qualifications by which the soldier in other branches may add from $2.00 to $9.00 per month to his pay, which are not obtainable and are not allowed to the Hospital Corps.

The sergeants of the Hospital Corps now actually receive less pay than any other non-commissioned officers of the same grade in any branch of the service. Their flat pay is $30.00 per month, without the opportunity to qualify in marksmanship, gunnery, or so-called special ratings, as in other branches; these qualifications add from $2.00 to $9.00 per month to the flat pay of sergeants in all other branches. In the Signal and Coast Artillery Corps, the sergeant and second class electrician sergeant respectively, who may fairly be compared with the sergeants of the Hospital Corps, receive $36.00 flat pay.

To obtain the position of sergeant in the Hospital Corps the soldier is required to qualify in a written examination in pharmacy, materia medica, care of sick, elementary hygiene, arithmetic, minor surgery and hygiene and is, in addition, examined orally in army regulations, nursing, practical pharmacy, clerical work, drill, minor surgery, including extraction of teeth. In other branches, an examination of relatively equal scope and difficulty is required only of sergeants and second class electrician sergeants of the Signal and Coast Artillery Corps, and their pay is $36.00 as compared with $30.00 of the Hospital Corps sergeants.

The duties of the Hospital Corps sergeants are arduous, confining and responsible. In the compounding of prescriptions, alone, he assumes a responsibility which merits adequate remuneration. In the pay increase of 1908 sergeants of infantry, cavalry and artillery received an increase of 65%, the sergeants of the Hospital Corps received an increase of 20%. It is proposed in accompanying Bill to pay the sergeants of the H. C. $36.00, as in the case of Signal Corps sergeants and second class electrician sergeants. Considering the long hours of duty and nature of the work devolving upon them, it is believed that the proposed equalization is not only necessary, in the interests of the sick, but also just to the Corps.

The grade of sergeants major at $75.00—corresponding to that of master signal electrician and master electrician—is created by this Bill, with the object of placing the Hospital Corps on a basis of equality with other branches and offering to the non-commissioned officers of this branch opportunities equal to those obtainable in others. This course is necessary if the Medical Department is to secure its quota of the best and most desirable soldiers. At the larger hospitals it is necessary, as there will be found five or six sergeants first class all receiving the same rate of pay, although the senior carries the responsibility for his juniors. The work of such a man requires highly technical training and considerable ability; such men will not at present enlist in the Hospital Corps because they realize the better opportunities open to them in other branches. The grade of pharmacist exists in the Navy and in the Marine Hospital Service at a far higher rate than that proposed for the Army. It may here be noted that the Army Signal Corps, in which the average rates of pay for co-existing grades are equal to those of the Hospital Corps, has 3.4% of the master signal electrician grade at $75.00 per month. With a like proportion, the Hospital Corps should have 120 of such a grade; it is, however, proposed that there shall be but 30 sergeants major at $75.00 per month.

An increase of $15.00 per month (from $50.00 to $65.00) is proposed for the sergeants first class. The proposed rate equals that of the engineer in the coast artillery. What has been said about the qualifications, duties and responsibilities of the sergeants of the Hospital Corps applies with greater force to the sergeants first class. The latter are selected by competitive and searching examinations from the best qualified sergeants; they perform the duties of pharmacists, clerks, storekeepers, disciplinarians, anesthetists and are practically continually on duty and at work. The sick soldier is sick quite as much at night as during the day and it is the function of the sergeants first class and sergeants to nurse and supervise the nursing of the sick. The sergeants first class are practically the house surgeons, pharmacists and chief nurse combined, of our military hospitals.

Alone of all non-commissioned officers of the Army, the sergeants first class are

subject to re-examination professionally every three years. This fact alone compels these men to devote to study the majority of the few hours of spare time which others can devote to amusement. Under present conditions, the sergeants first class are all on the same level of pay; there is no reward for exceptional qualifications of merit. In this respect the Hospital Corps differs from any other branch of the Army and with a most unfavorable result.

The duties of the Hospital Corps in the field are even more arduous than in garrison. The work of driving an ambulance filled with sick is, for example, quite as important as driving a wagon loaded with forage. Yet the wagon driver receives $40.00, if a civilian, and $21.00 if a soldier; while the Hospital Corps private receives but $16.00 or $18.00.

In the Navy the first class Hospital apprentice corresponding to first class private Hospital Corps, receives $33.00 as compared with $18.00 in the Army. The rates of pay provided for in attached bill are those recommended by the Surgeon General of the Army in his last annual report to the Secretary of War and represent what must be considered as expert and authoritative opinion as to the degree of improvement necessary to better present conditions.

The privates of today are the non-commissioned officers of the future; it is a military axiom that good non-commissioned officers—men trained in their specific duties—are absolutely necessary for military efficiency. It follows that if the Hospital Corps cannot obtain good material for privates the quality of its non-commissioned officers will decline. The private soldier seeks and obtains his reward to non-commissioned rank—that of corporal, sergeant, etc., and without some improvement in the pay of those and other grades, it is evident that men competent to become non-commissioned officers will not enter the Hospital Corps.

The soldier, whether officer or enlisted man, has practically no voice in the selection of his nurse or pharmacist; the national government provides both and whether skilfull or otherwise, the soldier must perforce be content. The function of the nurse and of the pharmacist are too responsible to be entrusted to men of a low order of intelligence or who lack appreciation of the responsibilities of their duties. It is a matter of official record in the War Department, as reported by numerous medical officers, whose interests are purely professional and humanitarian, that the morals and quality of the Hospital Corps is a progressively declining factor. The outcome is obvious and requires no comment.

Following the custom in all branches of the Army, it is proposed to change the designation Hospital Corps to Medical Corps. The Hospital Corps is the only branch in which the soldier belongs to one corps and the officer who immediately commands him to another. The present arrangement has nothing to commend it and much to criticise. It is unwieldy, administratively cumbersome and inhibits the development of that esprit de corps which is maintained in other branches.

The National Guard under certain conditions becomes an actual portion of the United States Army, and the above arguments apply with equal force to its members, hence the pharmacists of the whole country are deeply interested. This matter is a serious one for even during actual hostilities more men die in the United States Army from Sickness than from the missiles of the enemy, which shows how very important is the promotion of the efficiency of the Hospital Corps.

A PLAN FOR COLLECTING EVIDENCE CONCERNING THE NEWER MATERIA MEDICA.

A paper under the above title by F. E. Stewart, Ph. G., M. D., Chairman of the Committee on Patents and Trademarks of the A. Ph. A., and of the Pa. Pharm. Assoc., was published in *The Medical Herald* for January, 1912. The author asserts that during the past thirty years, tens of thousands of alleged new remedies have been introduced by advertising and not more than one-tenth of one per cent. of them have proved of any therapeutic value. The author goes on to say:

"This introduction represents hundreds of thousands of useless experiments upon the sick by physicians in private and hospital practice, and many times that number by the self-medicating public. No one has profited by this so-called 'new remedy' business, except the manufacturers and the press—medical, pharmaceutical, secular and religious. The public, disgusted by this state of affairs, has lost faith in doctors and drugs and is turning to drugless systems of therapy for relief.

"The medical and pharmaceutical professions have been impoverished by it and their prestige seriously injured in public esteem. The public has suffered by it in health and finance. There is no use of trying to put the blame on anybody for all parties to the transaction are at fault. The medical profession is at fault because this condition of affairs could never have occurred if the profession as custodians of the materia medica had been true to its obligations toward the public. The pharmaceutical profession is at fault because instead of making a vigorous protest against the invasion of the pharmaceutic field by persons who desired to exploit it dishonestly for financial gain the profession virtually went into the same business. The public is at fault because it did not pass and enforce proper laws to make such exploitation of the sick impossible.

"The remedy is not to be found in throwing the materia medica overboard and resorting to drugless cults. It is to be found in standardizing the materia medica and rendering drugs instruments of precision.

"How shall this be accomplished? The answer is, by a co-operative investigation in which the medical and pharmaceutical press take part."

The author defines his meaning of drug standardization in the following terms:

"Drug standardization consists of fixing a nomenclature for drugs and preparations; it consists of determining methods for insuring uniformity in composition and physiological action and therapeutic effect; it consists in adjusting finished products to fixed standards and in devising means for keeping them there for a sufficient length of time to permit their proper application as therapeutic agents; it consists in reducing this knowledge to law and embodying it in system and then teaching it in medical and pharmaceutical colleges, universities and journals.

"But this knowledge cannot be taught until it is acquired. How then, is it to be acquired?

"The knowledge of medicine is to be acquired by the practice of the medical arts and by the publication of the results of experience by those engaged in that practice.

"Progress in the knowledge of materia medica is dependent upon the practice of those engaged in the practice of pharmacognosy, pharmacy, pharmacodynamics, therapydynamics and pharmacotherapy."

The history of the "Working Bulletin System" was then given. The system was devised by the author in 1881 as part of a plan for an investigation of the

materia medica of the world under the auspices of the Smithsonian Institute—a government institution at Washington for the free diffusion of knowledge.

Included in the plan was "the founding of 'Scientific Departments' by the great manufacturing houses, the same to be manned by pharmacognocists, pharmacists, biologists, and chemists, thus bringing the manufacturers into coöperation with the professions of medicine and pharmacy, and bringing both professions into close and harmonious relations."

Dr. Stewart relates how this plan of drug standardization was opposed by the so-called "patent" or "proprietary" medicine business, against which he has been waging continuous warfare ever since in consequence. In referring to this business and its protection under patent and trademark laws he says:

"Conditions existing in the materia medica supply business in relaton to patents and trademarks would not be tolerated in any other business for a moment. Suppose Bessemer had attempted to monopolize the name 'Bessemer steel' as a trademark after the patent for his process had expired. How long would the steel manufacturers have tolerated such a monopoly? Yet, some of the great chemical and pharmacal houses are advocating just such a monopoly. Suppose the inventors of pens, paint, paper, needles and pins, linen, woolen and cotton goods, and all other inventions, had claimed that they owned the exclusive right to make these products, that such rights belonged to them naturally, that they were protected in these rights by the common law, that others entering the field were invading their natural rights, that all products of the same kind were fraudulent substitutions, that they, the inventors not only owned the inventions themselves, but also owned the names of the inventions. Would not their claims have been considered absurd? And yet these are the arguments used by the so-called proprietary medicine interests in supporting their claims to monopoly. Under such a system of monopoly applied to all inventions, progress in civilization would have been impossible. The whole world would have been owned by an aristocracy of inventors and the people in the world would have been their slaves, or, the latter being in the majority, would have arisen in their might and put an end to the monopolists as well as to the monopolies. The object of the patent law is to promote progress in science and the useful arts, that of the trade-mark law to protect honest manufacturers and the public from the fraudulent substitution of one brand of goods for another. The patent law grants a seventeen-year monopoly to inventors of new and useful inventions. The trade-mark law is not intended to create or foster monopoly, but to promote legitimate competition. The two laws really have nothing in common, but the so-called proprietary people are attempting under the guise of trade-mark legislation to create a new patent system by which inventors of nothing but names may obtain commercial control over their products far more restrictive than obtainable by the patent law."

The author believes that the proper interpretation and application of the patent law to materia medica inventions and the use of trademarks to distinguish brands of open formula materia medica products, would aid, rather than hinder the scientific classification and standardization of the newer materia medica. He believes that wide and unprejudiced discussion of every alleged new invention is necessary for its proper classification, and that such discussion should be carried on in medical and pharmaceutical societies and in the reading columns of the medical and pharmaceutical press. He points out the difficulties of securing such discussion in journals which accept advertisements concerning the products referred to. In his opinion the organization of a strong central board of control,

in which the medical and pharmaceutical professions and manufacturing houses and press are represented would solve the problems affecting the new materia medica. He proposes that the "personnel of this board be the same as the present committee for the revision of the U. S. Pharmacopœia. The duties of this board to be:

"1. The censorship of the advertisements of the medical and pharmaceutical journals.

"2. To censor all literature from manufacturing houses, including labels.

"3. To determine what materia medica products shall be placed on the market.

"4. To determine the therapeutic value of products by collective investigation as represented by the working bulletin system.

"5. To co-operate with the Patent Office in the interpretation, application and enforcement of the patent and trademark laws relating to materia medica.

"The revision committee now decides what products shall go into the Pharmacopœia, and will have to decide sooner or later which of the new products shall be admitted. Why wait ten years until the meeting of the next Pharmacopœial Convention before investigating these new products? Why not co-operate with their introducers in determining the therapeutic value of new products at the time of their introduction? The recommendations of such a board would be exceedingly influential, as capital, always conservative, would hesitate to invest in a proscribed product. The Committee on Scope of the Pharmacopœia would thus be saved much needless labor, and humanity much needless experimentation. The refusal of a manufacturer to co-operate with the committee would be taken by the medical and pharmaceutical profession as prima facie evidence that the products will not bear the light of disinterested investigation."

Dr. Stewart's object in publishing his paper at this time is to bring the subject of materia monopoly and the introduction of alleged new products by advertising before the medical and pharmaceutical professions and the great manufacturing houses engaged in the materia medica supply business, hoping to excite general discussion, that the results of the same may be embodied in the report of the Committee on Patents and Trademarks for presentation at the next annual meeting of the American Pharmaceutical Association.

"THE EDUCATED FOOL."

"A man who has a very little sense may by mechanical process acquire a vast deal of information, and yet after all he is nothing more or less than what you have seen and what I have seen, the educated fool. There are men who are perfectly at home with the poets, versed with all the lore of the classics, men who can call the myriad stars by name and trace them in their unmarked paths through the Heavens, and yet, after it all, are fools, and after all, the accomplishments of a fool are as utterly wasted and worthless as a sweet toned instrument in the hands of a man who has no music in his soul. So that as I have said, as it was in the beginning, is now and ever will be, that which was born a fool must live and die one."—*Charles F. Moore,* Editor of "Paper."

Papers Presented to Local Branches

THE SELENIUM TREATMENT OF CARCINOMA.*

DR. FELIX VON OEFELE.

It is not a direct question for the pharmacists, if selenium will cure cancer or not; but it is important for the pharmacist to know if one or more derivates are efficient in the cure of cancer. It is also important to know how to handle these preparations for the making ready of medicines. In this particular it is necessary for the pharmacist to know more than the treating physician.

The main point of salvarsan is, that the poisoning effect of arsenic persists for the spirochaete, but in a persistent manner loses the poisoning effect on the human body. This preparation must be handled very carefully, and therefore it is put up in a special form ready for the physician's use. All the dividing into single doses is done in the manufacturing laboratory and there is no work for the druggist except to be the retail salesman. Mostly the selling of salvarsan is a direct business between the manufacturer, the wholesaler and the treating physician, and very often without the assistance of a druggist. The profit goes to the manufacturer and the unpaid dispensing trouble to the physician. This would not be necessary, if at the first, arsenic work on syphilis had been known to druggists.

For the cure of cancer the treatment of mice starts in the same way as the first salvarsan experiments. But the selenium application in the United States has gone further because it went the old way of pharmaceutical preparation without intravenous work.

The first thing to be known is the modus of the working of selenium. In the body you have albumins, fats and carbohydrates. These matters are burned up and the oxidized products given out. These mentioned foods consist of carbon, hydrogen, nitrogen, sulphur, phosphorus and other elements. Only carbon, hydrogen and sulphur are oxidized in the body. The other elements are only split off or formed into new compounds but are never changed in their degree of oxidation. It would take too much time to tell all the evidence which I found in cancer cases showing that the oxidation of carbon and hydrogen is increased and of sulphur decreased. A special treatment of cancer must be to improve the sulphur oxidation and to retard the oxidation of carbon and hydrogen. Especially selenium can do this.

Previously there were many other chemicals proposed for cancer cures. These were either oxidizing materials or aniline derivatives. The proofs for experimental efficiency were all right, but practically it was never possible to bring this efficient material to every carcinoma cell, and only in this way can cancer be cured.

*Read before the New York Branch, March 11, 1912.

Selenium as a cancer cure must be able to come to every pathological cell. There the selenium will take oxygen and give it over to a higher oxidation of sulphur and will again take oxygen. The selenium and its compounds have such a high affinity for special albumins and keratines, that they elect the carcinoma cells, if there is any possibility to get to them.

Elementary selenium in coarse powder is never absorbed, either by the mouth, nor by the skin, nor by subcutanous or intravenous injection. Very fine freshly precipitated selenium can be absorbed when given through the mouth or applied as ointment to the skin, but only to a slight extent, and this amount depends on the fineness of the powder, and the freshly precipitated material is more actively absorbed than the old. In a material as poisonous as selenium it is important to have an exact idea of the amount absorbed. Therefore precipitated selenium has no practical use.

The compounds of selenium in the form of selenium-hydrogen, or in the oxidized forms as selenous and selenic acids, are reduced by contact with living albumin to metallic red selenium. At first we used selenium dioxide through the mouth. If this selenium dioxide is diluted enough, or mixed with enough other substances, in the digestive tract, a very fine suspension of reduced red selenium is formed, which becomes absorbed in the smaller intestine. A small part goes into organic compounds, as methyl-selenide and another part swings between oxidized and reduced salts, i. e., between selenites and selenides. About the same thing happens, if we give selenites, selenides or selenates of an organic character.

The toxicity of selenites, selenides and selenates is about always the same and depends only upon the solubility. Insoluble salts as copper selenide cannot be absorbed and are therefore not poisonous and not efficient. The efficiency and poisoning amount of the soluble salts are about as close together as in arsenic. The poisoning amount of soluble selenium salts is for an adult man between 4 and 15 grains. The efficient amount is between 1/20 and 1/5 of a grain per day.

These properties make it more desirable to have soluble organic compounds. The old treatment of cancer by different aniline dye stuffs gave us an idea to use a compound of an organic dye stuff with the selenium. This corresponds to the preparation of Wassermann and Ehrlich in Selen-Eosin. We first used aniline and selendioxide. Later on we used the selenocynates. At first we used the sodium salt, later on the potassium salt.

The idea for the use of selenocyanates is this: In the whole body, especially in the saliva, we have sulfocyanates, and these have a very high affinity for the plasma of the cells. In the selenocyanates only the sulphur of the sulfocyanates is replaced by selenium. These soluble compounds are very easily absorbed. Up to this time this preparation is the best we have seen for practical use. Later on it may be that we will use a substituted thiosinamin with selenium in the place of sulphur, or phenylallyl-selenocarbamide or other similar compounds. In all these cases the idea is that the selenium acts upon the tumor cells as a special katalytic agent causing a decreased oxidation of carbon and hydrogen and an increased oxidation of sulphur.

Only a very finely distributed selenium compound of this kind will be sufficiently absorbed and transported by the blood to the tumor. We may give

solutions, powders, pills and other preparations, very well; distributed but coarsely mixed preparations will not be useful. Also all ingredients which are used in these preparations should not be able to react in any way with the selenium.

I think the use of pharmaceutical preparations of inorganic selenium compounds will not be practical for the treatment of cancer. The organic compounds will be in the first line. These organic compounds are used through the mouth, if I am right; and intravenously if Prof. Wassermann is right. The use either through the mouth or intravenously is a very important question for the pharmacist, and I will ask you to pay attention to this point.

Mice can never be treated through the mouth. Mice will never take medicine directly, food mixed with medicine is always refused by them. Even if it were possible you would never know the amount eaten by them. They take the food and carry it from one place to another before eating any amount and make their excrement on the residue. The only way to bring selenium into the system of the mouse is to inject the compound. With human beings this is not necessary. It would be very much more trouble to give this treatment intravenously than to give it through the mouth. I have strong evidence that the intravenous treatment by selenium is very dangerous, whereas the treatment through the mouth is harmless.

Prof. Wasserman has cured mice from cancer in ten days, but in twenty days the cured mice died. We have cured some people and they have not died. But we have also evidence that it would be dangerous if we had not been very careful. We controlled all these cases by exact quantitative urine analyses.

It was found that many derivates of the cancer had gone into the circulating fluid of the body after the use of selenium. These derivates are dangerous to the body and can be made less dangerous by a synthesis with sulphuric acid to etherfied sulphuric acid. In one case a fifth of a grain was given per day; the case recovered very quickly, but 90 per cent. of the sulphuric acid of the metabolism was used for the etherification of the circulating derivates of the tumor. A palpatory examination of the tumor showed that it was partly decreased and in different places very much softened.

Without the control with exact urine analysis every patient and every physician would have made the mistake not only as to the further use of the same medicine, but also to increase the doses. We are sure, if we had done so the patient would have died by auto-intoxication. In the selenium treatment of cancer the sulfur-metabolism and especially the amount of circulating absorbed products must be exactly measured. If we give selenium three times a day through the mouth we can find out at what time the treatment must be stopped. If we used intravenous treatment, it would not be possible to give the selenium three times per day for six weeks. If too much selenium is given by intravenous treatment, it works too quickly and when it is too late, we find out that the doses were too high. Therefore my conclusion is that the intravenous treatment is all right for experimental work on mice, but it is very misleading if we want to find a cure for sick people. Our proved cure of cancer goes through the mouth. This is the point wherein we disagree with Wassermann. The druggist should know of this disagreement.

TEST SOLUTIONS OF THE UNITED STATES PHARMACOPŒIA.*

N. A. DUBOIS AND O. H. STRINGER.

Ever since Dr. Lyman Spalding in the year 1817 proposed the formation of a National Pharmacopœia, the subject matter of the U. S. P. has been of the utmost interest and importance both to the pharmacist and the physician. This publication has, by the efficient efforts of various revision committees, passed through eight revisions each of which has brought out new and important advancement; until in the present Eighth Decennial Revision we have an admirable representation of the wonderful efforts of the American people in a strife for the higher ideals of a more ethical, scientific, and righteous standard.

Since, however, man is not omniscient and his mental machine not a perfect one as yet, we find that this standard is not absolutely perfect and necessarily these revisions must go on; and in accordance with the rapid advances in scientific knowledge which our thinkers and research workers are giving us in all branches.

Our work should always be for something better. Something which will help to make knowledge easier to acquire, easier to retain and more definite. Anything which will save time or labor either mentally or physically, or increase the efficiency in the gaining of knowledge or the making of a product, therefore, must be considered as a step in advance.

It seems that the present test solutions of the U. S. P. furnish material for thought along these lines.

In the table are given some of the Test Solutions as found in the Eighth Decennial Revision of the U. S. P. These are simply taken at random from among the solutions frequently used in the regular qualitative tests.

For convenience, they have been arranged in groups of corresponding normality concentrations.

The very concentrated acids and ammonia water are purposely left out because they must necessarily always be of the percentage strength or concentration at which the manufacturer furnishes them to the trade.

Column No. 1 gives the number of the solution as it is here considered, Column No. 2 the name of the chemical, Column No. 3 the chemical formula, Column No. 4 the U. S. P. concentration and Column No. 5 the corresponding weights to produce solutions which are chemically equivalent to each other or a simple multiple of equivalent.

The solutions have also been arranged in normality concentrations which have been found convenient and to give good results in a testing laboratory.

The table must not be taken as in any wise complete, but is simply given as an illustration of conditions as they exist. The figures in brackets give the number of the test solution in the U. S. P.

A brief consideration of this table will show at once that there is no general relation whatever between any two test solutions and their chemical equivalence; and furthermore, no attention is paid to the water of crystallization in the U. S.

*Read before the Northern Ohio Branch, March 1, 1912.

P. concentration, whereas, this must always be weighed with the chemical and should be considered, as it is in the weights taken for the normality concentration.

No.	Name	Acids Dilute, Formula	U. S. P. Concentration	Normality Concentration. Double Normal 2N
1	Hydrochloric Acid (46).....	HCl	10%=100 gms. per 1000 c.c.	72.92
2	Nitric Acid (71).....	HNO_3	10%= " " " " "	126.10
3	Sulphuric Acid (118).....	H_2SO_4	10%= " " " " "	98.08
4	Acetic Acid (2).....	$HC_2H_3O_2$	6%= 60 " " " "	120.08
5	Tartaric Acid (120).....	$C_4H_6O_6$ in	3%=333.33 " " " "	150.06
		Alkalies Dilute.		
6	Sodium Hydroxide (108).....	NaOH	5%= 50 gms. in 1000 c.c.	80.12
7	Potassium Hydroxide (90)...	KOH	5%= 50 " " " "	112.32
8	Ammonium Hydroxide (7)...	NH_4OH	10%=100 " " " "	70.18
		Salts.		
9	Ammonium Carbonate	$(NH_4)_2CO_3$	Not given in the U. S. P....	96.16
10	Ammonium Carbonate (8)...	$NH_4HCO_3NH_4NH_2CO_2$	20%=200 gms. per 1000 c.c.	157
11	Ammonium Chloride (9).....	NH_4CL	10%=100 " " " "	107.06
12	Sodium Carbonate (106).....	$Na_2CO_3.H_2O$	10%= " " " " "	124.10
				Normal N
13	Barium Chloride (19).....	$BaCl_2.2H_2O$	10%= " " " " "	122.17
14	Calcium Chloride (26).....	$CaCl_26H_2O$	10%= " " " " "	109.51
15	Cobalt Nitrate (32).....	$CO(NO_3)_26H_2O$	10%= " " " " "	146.00
16	Ferric Chloride (41).....	Indefinite — not less than 22% metallic iron in form of chloride—	10%=100 gms. in 1000 c.c. Fe Cl_3	54.11
17	Lead Acetate (55).....	$Pb(C_2H_3O_2)_2.3H_2O$	10%=100 gms. in 1000 c.c.	189.51
18	Magnesium Sulphate (59)....	$MgSO_4.7H_2O$	10%=100 " " " "	123.28
19	Mercurous Nitrate (56).....	$HgNO_3$	10% of mercury=131.27....	262.34
20	Potassium Dichromate (86)...	$K_2Cr_2O_7$	5%= 50 gms. in 1000 c.c.	49.08
21	Potassium Ferrocyanide (89).	$K_4Fe(CN)_6.3H_2O$	10%=100 " " " "	105.72
22	Sodium Acetate (103).....	$NaC_2H_3O.3H_2O$	10%=100 " " " "	136.14
23	Sodium Phosphate (111).....	$Na_2HPO_4.12H_2O$	10%=100 " " " "	119.45
24	Stannous Chloride (115).....	$SnCl_2.2H_2O$	10%=100 " " " "	112.72
				Half Normal N/2
25	Ammonium Oxalate (11).....	$(NH_4)_2C_2O_4.H_2O$	4%= 40 " " " "	35.54
26	Copper Sulphate (36).....	$CuSO_4.5H_2O$	10%=100 " " " "	62.44
27	Mercuric Chloride (60).....	$HgCl_2$	5%= 50 " " " "	67.8

To speak briefly, consider solutions 1 and 6 made according to the U. S. P. Here we have a solution of hydrochloric acid and one of sodium hydroxide.

The ratio of their respective concentrations per unit volume is 100 to 50. In order that the unit volume of the two solutions should be chemically equivalent, this should be 72.92 to 80.12, numbers vastly different from the U. S. P. ratio.

Again consider the U. S. P. weight ratio for solutions. (2) (Nitric Acid) and (8) (Ammonium hydroxide) which is 100 to 100, while the ratio of the weight for a double normal solution of each of these is 126.10 to 70.18. This means of course that if made according to the U. S. P. it would be necessary to go through a calculation to find the number of cubic centimeters of the two solutions equivalent to each other, which gives approximately 126 cc. of the Nitric Acid solution to neutralize 70 cc. of the ammonium hydroxide, whereas if made double normal in both cases we know at once that the same number of cc. of both solutions are equivalent, or 100 cc. of nitric acid would neutralize 100 cc. of ammonium hydroxide.

The convenience accompanying the use of solutions of relative normality equivalent strength is easily seen, even when the sole use is for qualitative tests. One readily becomes accustomed to the volume of precipitate caused by say one cubic centimeter of a normal solution of a certain precipitant. Knowing this and the volume of precipitate of similar composition produced by one cubic centimeter of an unknown solution he can readily estimate the approximate concentration of the particular element in his unknown. It is well known that by this method one can with a little practice estimate within a very few per cent. as to the purity of a salt from a qualitative test or as to the per cent. of a certain impurity in it.

On the other hand, these solutions of relative normality concentration might be made a means of great convenience and time saving in making certain preparations. It is only necessary to keep in mind that equal volumes of all solutions of the same normality are equivalent chemically. That is, one cubic centimeter of any double normal solution will exactly react with one cubic centimeter of any other double normal solution, if a reaction takes place at all. The same thing of course holds for normal and for half normal solutions. Thus 100 cc. of any double normal solution will react with 100 cc. of any other double normal solution, 200 cc. of any normal solution and 400 cc. of any half normal solution.

As an example of a simple class of preparations, suppose it is desired to make a normal solution of ammonium acetate, i. e., one containing one gram molecule per liter (63 grams $NH_4C_2H_3O_2$) or 6.3 gms. in each 100 cc. It is simply necessary to mix 50 cc. of ammonium hydroxide (solution 7 in the table) with 50 cc. of acetic acid (solution 4 in the table).

As an example of the application of these solutions in a more complicated preparation, let us consider the making of Ammoniated Mercury or White Precipitate (mercuric amido chloride—NH_2HgCl). This is made from the solutions of mercuric chloride and ammonium hydroxide. These as is seen from the table are half normal and double normal respectively or $HgCl_2 = N/2$ and $NH_4OH = 2N$. Since normal solutions are equivalent and the mercury bichloride is one-fourth the normal concentration of the ammonium hydroxide, the volumes of these two solutions must be mixed in the inverse ratio of 400 cc. of $HgCl_2$ $N/2$ to 100 cc. of NH_4OH 2N.

It is evident that the precipitate will weigh approximately four times the equivalent of 100 cc. of a half normal solution or the equivalent of 100 cc. of a double normal solution, and therefore, since mercuric amido chloride is a divalent salt, it will weigh one-tenth of a gram molecule and by simple inspection of the molecular weight of NH_2HgCl — 249.61, we have 24.9 grams.

In conclusion it may be said that the use of stock solutions related to the normal solution will in many cases save time and labor in the way of quantitative operations, when only approximations are necessary and will also be effective in materially simplifying calculations and shortening the time necessary in making many preparations.

CLEVELAND SCHOOL OF PHARMACY, DEPT. OF WESTERN RESERVE UNIVERSITY.

SOLUTION OF MAGNESIUM CITRATE.*

JOSEPH W. ENGLAND.

The official formula for Solution of Magnesium Citrate is being considered by Sub-Committee No. 10 of the U. S. P. Revision Committee and suggestions are invited.

C. H. LaWall states that in his analyses of this solution as marketed he has sometimes found a deficiency in magnesium content, and sometimes sulphate in excess of the official limit, indicating the presence of magnesium sulphate. He suggests that standards be given for magnesium content in the residue obtained by ignition, and for maximum content of magnesium sulphate.

The official formula for this widely-used preparation has undergone little change during the past three decades save in the quantities of active ingredients. In 1880, 200 grains of magnesium carbonate and 400 grains of citric acid were called for in the formula, equivalent to 13 grammes of the former and 26 grammes of the latter. In 1890, the carbonate in the formula was increased to 15 grammes and the acid to 30 grammes, or in the same relative proportions as before. In 1900, the formula called for the same quantity of carbonate as before —15 grammes, but increased the acid to 33 grammes.

In 1880, the flavoring was syrup of citric acid (containing citric acid and spirit of lemon); in 1890 it was the same, but in 1900, while the use of syrup of citric acid was continued, tincture of fresh lemon peel was directed to be used in place of the spirit of lemon.

The main criticisms made against the present official solution of magnesium citrate are that it is excessively acid in taste, putting the teeth on edge and causing griping, that it is too weak in flavor, and that, on keeping, it sometimes forms fungus growth.

The increase of acid from 26 grammes in the 1880 formula to 33 grammes in the 1900 formula was made to prevent precipitation and secure a more permanent preparation. But, the quantity of acid should be reduced, if possible, to the lowest point that will insure proper keeping for a reasonable length of time. The solution is not intended to be kept for a long time, but to be prepared freshly when wanted, or in small quantities.

A tentative formula for solution of magnesium citrate was sent to a number of pharmacists by the writer, and the following opinions have been received:

George M. Beringer writes that:

"I have for years followed a formula somewhat along the lines that you propose, but have always used the light calcined magnesia, the magnesium oxide, U. S. P., in place of the carbonate. You are entirely correct in directing the use of *hot* water to dissolve the citric acid. The trouble in making of solution of magnesium citrate is to avoid the introduction of bacteria and spores which not infrequently develop in this solution fungus growth and disagreeable taste in a very short time. There are other points which should be included in an official formula to avoid such introduction. First, distilled water should be used; it should be heated to the boiling point and in this the citric acid dissolved.

*Read before the Philadelphia Branch.

"Magnesium carbonate of the market is usually dried in the air and is more prone to contain bacteria and spores from the exposure in drying than is the calcined magnesia. The very process of calcination destroys thoroughly bacteria then present, and if after preparation it is properly stored it is much less likely to be contaminated in this way than the carbonate. If this change be made in the formula, then one-half as much oxide as the prescribed amount of carbonate will be sufficient.

"I would suggest that the oil of lemon be increased to 0.1 cc. and that it be mixed with the magnesium oxide before addition to the citric acid solution. Purified talc is unnecessary and simply adds another source of contamination.

"Your caution regarding the sterilization of the bottle is very important."

Robert C. Cadmus writes that he uses the official formula, but employs syrup instead of syrup of citric acid, distilled water in place of water, and flavors with a special tincture of lemon peel, using 55 minims to each bottle. The special tincture of lemon peel he makes by adding 30 cc. of oil of lemon to 1000 cc. of the U. S. P. tincture of lemon peel.

William L. Cliffe employs the following procedure in making the solution:

"Dissolve the citric acid in 120 cc. of hot water. Dissolve the oil of lemon in 1 cc. alcohol and distribute evenly through the magnesium carbonate, and add to the citric acid solution. After complete solution, filter through a *wet* paper filter into a strong bottle of about 360 cc., into which has previously been placed the syrup.

"Then add enough water to nearly fill the bottle and drop in the crystals of bicarbonate of potassium and immediately stopper the bottle in a secure manner.

"If it is desired to keep the preparation for more than a day or two, it should be sterilized by placing the bottle in water and bringing to the boiling point, which should be maintained for about 20 minutes."

Henry L. Klopp follows the official formula, but uses syrup in place of citric acid and mixes oil of lemon (1 minim to bottle) with the magnesium carbonate before adding the latter to the acid solution. He prefers to use magnesium carbonate in the *block* form, believing that this yields a more permanent solution than powdered magnesium carbonate.

William E. Lee dissolves the citric acid in hot water, and uses Jenning's light calcined magnesia. As a flavor, he uses oil of lemon (1 drop) and tincture of ginger (9 drops) to each bottle, and employs syrup instead of syrup of citric acid. He filters his solution while hot into a bottle (which has been sterilized with hot water) containing the syrup, then adds enough hot water to nearly fill the bottle, dropping in the crystals of potassium bicarbonate, and immediately stoppers the bottles securely. The solution is kept in a cool place. If a bottle is used a second time for solution of magnesium citrate, he cleans it out with strong sulphuric acid, and then washes it with water until all traces of the acid have been removed.

Richard W. Cuthbert follows the official formula, but sterilizes the bottle, and employs Jenning's carbonate of magnesium, natural spring water, purified talc, syrup, and crystalline potassium bicarbonate. He flavors with oil of orange (0.06 cc.) and tincture of ginger (0.4 cc.). He writes:

"We have been able to keep the preparation prepared as above for a period as long as three weeks and believe it could be kept in a salable condition for even a

longer period. Of course it was kept on ice, but the only sterilization done in its preparation was in boiling the bottles for at least half an hour.

"We credit our success in the keeping qualities of our product to the use of pure water, sterilization of the bottles, the use of oil of orange instead of oil of lemon, filtration through purified talc and the use of crystals of bicarbonate of potassium instead of the tablet usually employed for this preparation, and most of all, by using Jenning's carbonate of magnesium, which is a much superior article to any made in this country."

In this connection, it should be stated that M. D. Allen (American Journal of Pharmacy, December, 1911, 564) recommends a formula calling for one ounce (av.) of citric acid, one-half ounce (av.) of magnesium carbonate, two ounces (av) of sugar, 48 grains of purified talc, and sufficient water to make 12 fluid-ounces, flavoring with 24 minims of a flavoring tincture. The bottles after being filled with the solution are closed and placed in an ordinary wash boiler, covered with water, and boiled for about 30 minutes. The solution so made has been kept for five months. The potassium bicarbonate is added at the moment of dispensing. The flavoring tincture consists of oil of lemon 6 fluid drachms, oil of orange 4 fluid drachms, tincture of ginger 6 fluid drachms, and alcohol sufficient to measure 4 fluid ounces.

The consensus of opinion expressed seems to be that the bottle should be sterilized; that the quantity of citric acid in the official formula should be reduced, if possible; that hot sterile water should be employed in making the solution; that oil of lemon, alone, or with tincture of ginger, should be used in place of the tincture of fresh lemon peel in the syrup of citric acid now required; that syrup should be directed in place of the syrup of citric acid, and that crystalline potassium bicarbonate should be used.

In making a number of bottles of the solution, instead of filtering into individual bottles containing the syrup, as officially directed, it is better to filter into a separate sterile container, and pour the filtrate very carefully down the inside of each bottle upon the syrup, avoiding diffusion of the syrup with the supernatant solution, and then to add the potassium bicarbonate and immediately stopper the bottle. In this way, there is very little loss of carbonic acid gas. The bottle should be laid on its side in a cool place until needed.

Some pharmacists do not add the potassium bicarbonate to the solution until the moment of dispensing; others add it when the solution is made, claiming that the carbonic acid gas in the bottle keeps the air out and makes the solution more permanent.

As to the employment of magnesium oxide or light calcined magnesia in place of magnesium carbonate there are some differences of opinion.

The National Standard Dispensatory (1908, 944) claims that "magnesium carbonate is preferable to the oxide as it is less apt to vary in composition, but if the latter is chosen, 6.23 grammes of magnesium oxide may be used in place of the 15 grammes of the official carbonate."

On the other hand, there are pharmacists who claim that they get better and more uniform results by using light calcined magnesia instead of magnesium carbonate. The U. S. Dispensatory (1907, 725) states that "It is somewhat

more convenient to use calcined magnesia in place of the carbonate, and in one of the best processes we have seen the fifteen grammes of the carbonate in the official formula are replaced by five grammes of Jenning's light calcined magnesia."

It may be added that the Pharmacopœia requires that magnesium carbonate shall yield upon ignition "not less than 40 per cent. of residue, of which not less than 96 per cent shall consist of pure magnesium oxide."

The following formulas are suggested, not for inclusion in the Pharmacopœia, but for the purpose of eliciting discussion, so that they will lead to the framing of an official formula that will give general satisfaction to all sections of the country.

SOLUTION OF MAGNESIUM CITRATE.

Magnesium Carbonate	13	gm.	201 grs.
Citric Acid	27.5	gm.	424 grs.
Syrup	60.0	cc.	2 fl. oz.
Oil of Lemon	0.05	cc.	1 drop.
Purified Talc	5.0	gm.	77 grs.
Potassium Bicarbonate	2.5	gm.	39 grs.
Sterile water, a sufficient quantity.			

Dissolve the citric acid in 250 cc. (8 fluid ounces) of hot sterile water, add the magnesium carbonate, and stir until it is dissolved. Then add the oil of lemon previously triturated with the purified talc. Filter the solution, first, into a sterile container, passing the filtrate through the filter repeatedly until it is perfectly clear, and then filter all the solution into a strong sterile bottle holding about 360 cc. (12 fluid ounces), containing the syrup. Add enough sterile water to nearly fill the bottle, drop in the potassium bicarbonate and immediately stopper the bottle securely. Lastly, shake the solution occasionally until the potassium bicarbonate is dissolved. Keep the bottle on its side in a cool place, preferably on ice. The object of this is two-fold; first, to prevent the formation of fungus, and second, to insure the retention of the gas in the solution as much as possible.

By sterile water is meant either distilled water, or the purest obtainable potable water, boiled.

The solution should be made extemporaneously, or as nearly so as practicable.

The bottle used for filling the solution should be previously sterilized by being boiled in water for 15 minutes.

SOLUTION OF MAGNESIUM CITRATE.

Magnesium Oxide	5.0	gm.	77 grs.
Citric Acid	27.5	gm.	424 grs.
Syrup	60.0	cc.	2 fl. ozs.
Oil of Lemon	0.05	cc.	1 drop.
Purified Talc	5.0	gm.	77 grs.
Potassium Bicarbonate	2.5	gm.	39 grs.
Sterile water, a sufficient quantity.			

Follow general directions of preceding formula.

SOLUTION OF MAGNESIUM CITRATE—SUGGESTED IMPROVEMENT IN METHOD OF MANUFACTURE.*

T. BERNARD TANNER, PHAR. D.

The principal purpose of this paper is to discourage the too frequent use of home made formulæ for this preparation, which in most instances, bring the ultimate product into conflict with the Pure Food and Drug Act, as being a certain form of adulteration, and to prove by practical demonstration that it is possible by a slight modification in the details of manipulation to make a practically stable preparation using the U. S. P. formula.

I might say, at this point, that in my estimation the use of home made formulæ is brought about by the notorious instability of this preparation if made according to the method prescribed by the U. S. P., it being almost impossible to make a solution which will remain perfectly clear under the most ideal conditions for more than three days.

While it is desirable to manufacture this preparation fresh when wanted, still there are many disadvantages in doing so, and since the only deterioration which would seriously affect its therapeutic efficiency are the precipitation which takes place and the formation of a mold, both of which can be prevented, there is no reason why the solution may not be made up in reasonable quantities.

In many localities the sales of "Citrate" are so great that it will make this discussion seem almost unnecessary, but even here we have to take into consideration the possibility of having the customer purchase a bottle and then decide that its use will not be necessary for several days.

It would hardly be reasonable to expect the laity to understand why a preparation which was clear and sparkling when it was purchased, should deposit an inch of "some white powder." Their first conclusion being that they had narrowly escaped an untimely death, and immediately deciding that the pharmacist was incapable. I have had more than one such experience.

Unfortunately a great number of the patrons of every store are ignorant people and in many instances these individuals will not come back for an explanation, but will do all in their power to prevent their fellows from patronizing that particular store.

There has been much written and said about sterilizing the solution. I know a pharmacist who sterilizes every bottle of this solution which leaves his store, he having provided himself with the facility for doing this on a large scale. This, of course, is an ideal method, but it is not only time consuming but is not always practicable for if not done carefully, this process has a tendency to produce a preparation which is darker in color than the U. S. P. article, due perhaps to the carmelization of a small amount of sugar.

In collecting a few samples and persuading the clerks to tell me the method of manufacture used in the store where purchase was made, I found no less than four different formulæ, any of which were good in themselves, but were *not* U. S. P. Upon questioning, I learned that in all cases the employer had tried the

*Read before the Northern Ohio Branch.

U. S. P. formula, but found it impossible to make a stable preparation or one which would last more than two or three days.

I also found a number of pharmacists using the U. S. P. formula modified by substituting one-half the quantity of light calcined magnesia, and carbonating at the time of dispensing.

February 9 I had our Junior class prepare the solution, using the official formula with the modification which I am about to suggest, and also the official formula unmodified. In both cases I used a very poor grade of magnesium carbonate, and tap water, and did not attempt sterilization in any way. The preparations were both carbonated and subjected to the variable temperature of the laboratory.

After standing less than sixteen hours, the solution made by the U. S. P. method had become cloudy, and precipitated to the extent which you observe, after standing twenty-four hours.

The solution by the other method is, as you see, almost clear at the present time, and would be entirely so if it were not for the formation of a very small amount of mold.

The modification which I suggest and the method by which this comparatively stable preparation has been prepared is:

To place the citric acid and magnesium carbonate in a suitable container and add about two-thirds of the required amount of water. After the reaction has taken place and the solution is free from turbidity, the syrup of citric acid is added and enough water to make the required amount, after which the whole is filtered, placed in bottles, and carbonated.

It is obvious that if a preparation made with commercial materials will remain permanent for a month, then it should be possible to make a beautifully sparkling solution which will remain clear indefinitely by taking the precaution to use the best grade of materials and distilled water.

PHARMACEUTICAL LABORATORY, CLEVELAND SCHOOL OF PHARMACY.

THE CONTENTED DRUGGIST.

Contentment is a fine thing. It is the basis of happiness. The man who can be content with his lot does not need a very large lot. He will not have a very large one. The druggist who is so contented that he is satisfied to let well enough alone will find that as the cost of living increases it will become necessary for him to do without many things that he has previously regarded as necessities. Contentment is not a business getting quality. Live wires are not contented. They are restless. Ambition and contentment do not journey along together through life. If you want the kind of happiness that comes with contentment you can have it, but only at the expense of your business success.—*The Spatula.*

Section on Scientific Papers

Papers Presented at the Fifty-Ninth Convention

THE CHEMIC EXPERT WITNESS.

G. H. MEEKER, PH. D., LL. D.

General. The flow of evidence on the witness stand might be likened to the alternating electric current: the change from attack to defense is the change of polarity; the ordinary witness furnishes a monophase current; and the expert witness furnishes a polyphase current. Or, passing from analogy to fact, court precedents establish a great difference between the ordinary witness and the expert witness. The ordinary witness has the sole function of testifying to the pertinent facts which have come under his personal observation. On the other hand the expert witness has no less than six functions, namely:

(1) Testimony as to *ordinary facts;;*
(2) Testimony as to *expert facts personally observed;*
(3) Testimony as to *expert facts observed by others* and within his field and knowledge as an expert;
(4) Testimony as to his *direct expert opinions;*
(5) Testimony as to the *opinions held by other experts;*
(6) Testimony as to his *opinions of other expert opinions.*

The expert's testimony as to ordinary facts includes such matters as his qualifications as an expert; the history of his connection with the case; dates and localities of viewing objects in the case; of persons present during stated times and at stated places; when, how and from whom samples and exhibits were received; histories of samples, etc., before and after being received by him; conditions of containers; and so on indefinitely. What may easiiy be overlooked in this line of testimony may also be vital to the whole case. For example, if the chemic expert receive a sample which, on the witness stand, cannot be completely and legally identified, then the chemist's labor and testimony are valueless. Such a break in the complete chain of identity of a sample may occur either before or after the chemist receives it. The expert must be careful to provide against this line of attack—which has such great possibilities that one is surprised at the perfunctory manner in which acute counsel often conduct this portion of their examination.

Testimony as to expert facts personally observed, includes such matters as the expert's experience; the rationale and minutiæ of his tests; and his personal knowledge of the scientific data upon which his tests, observations and conclusions are founded. This is the most difficult portion of the chemic expert's testimony.

Testimony as to expert facts observed by others, and within his knowledge

and field as an expert include the pertinent recorded facts of science as they are understood by the expert, and employed by him explicitly or implicity; consciously or subconsciously; correctly or erroneously. This, though unconsciously so, is really the major portion of the scientific expert's testimony—and it is one of the easiest portions. If the recorded facts of science had the same force as the recorded decisions of courts, which conclude judicial proceedings, it would simply be necessary to state the references involved; but, unfortunately, it is a truism that the records of science are not always rigidly exact and that they are a multitude of unprecise or erroneous statements of facts. For example, there exist, as it were, no "supreme court decisions" in chemic records. Practically the only court in which such matters are decided is the "Court of Common Consent" by scientific men. As this court, however, has neither official existence nor official records of decisions, from which citations may be made, the expert essays to guide the court and jury in these matters for the purposes of the trial. His essays may or may not truly reflect the general opinion of scientific men. Thus in drug, food and fertilizer cases, if the chemic expert cited atomic weights from the latest report of the Atomic Weight Committee of the American Chemical Society; drug standards from the United States Pharmacopœia and National Formulary; and food and fertilizer standards from the regulations of the federal and state agricultural departments and from the official methods of the American Association of Official Agricultural Chemists, he would truly report the prevailing scientific decisions in the premises. On the other hand, he might state with Professor Ramsay that certain elements had been transmuted, whereas the general opinion might agree with Mme. Curie to the contrary.

Testimony as to the expert's opinions is of minor importance in chemic expert testimony, but is of major importance in the testimony of most other expert witnesses—such as therapeutists upon the cause of death; of alienists upon the sanity of persons; of handwriting experts upon the authorship of signatures; etc.

This form of testimony when explicitly an opinion is usually based upon a hypothetic question. Ofttimes, however, the expert is asserting as a fact something which upon analysis proves to be but an opinion. The chemic expert should analyze his testimony as carefully as he analyzes his samples; and should preserve in his mind that orderly array of his testimony that will as surely assign to each part its proper sequence, designation and value as his chemic tests should assign to each reported constituent of a substance its proper identity and quantity.

Testimony as to the opinions of other experts: In this phase of his testimony, the expert merely reports without criticism the theories and conclusions which others have stated in speech, journals and text books—in contradistinction to the facts so recorded. He should guard, however, against confounding facts with theories. Much expert testimony is inaccurate owing to the expert's failure, through ignorance or inadvertence, to make clear that particular assertions are theories and not experimental facts. The truly alert cross-examiner will be alive to this distinction; and may in this way often confound an otherwise excellent expert witness.

Testimony as to the expert's opinions of other experts' opinions is ever of major importance. It consists of the expert's critiques upon journal or text book quotations; or upon the evidence of the opposing experts at the trial.

Should there be opposing experts in courts of justice? The answer is, emphatically, yes. Much has been said and written to the contrary. The "battle of experts" has been decried. Chagrined experts have cavilled against the indignities they have imagined themselves to have suffered at the hands of opposing counsel. The serene and beautiful dignity which would maintain were an "official expert" to act alone in guiding the court and jury in all questions relating to his specialty has been pictured. The injury which experts in general suffer in the newspaper and popular imagination because of the extravagant assertions on the part of some experts, and because of the conflicting evidence of opposing experts, has been deplored; and the usual ready cure-all has been suggested. But suggestions for alteration of the present court procedure are, to say the least, amateurish.

While our courts may at times dispense injustice, it is but accidental. On the whole, our court procedure is the very best machinery that man throughout his generations has been able to devise for the protection and happiness of all; and this procedure is based upon the right of trial by jury. A single judge may indeed decide upon questions of law; but his decisions are subject to appeal and revision by a higher court—in which a plurality of judges but constitutes a special kind of jury. It is just as common to have a minority opinion from a court of appeal diametrically opposed to the majority opinion as it is to have two diametrically opposed expert opinions expressed in a trial. Yet one hears no outcry against a plurality of judges; and the judges themselves are not reproached for diversity of opinion. The argument for a single expert is, when carried to its logical conclusion, but parallel with argument for trial without jury, before a one-man court of first and last resort; or for a despotism as against a constitutional monarchy; or for a constitutional monarchy as against a republic.

The mass of accumulated scientific knowledge is so vast, the opportunities for error so abundant, the stimulus to best efforts so active under criticism and so dormant in its absence, that justice is just as surely toned by the "battle of experts" as it would atrophy under the reactionary, un-American policy of the *Expert Overlord.*

The opprobrium of the expert witness. Said Pope in his moral assays:

> "Who shall decide when doctors disagree,
> And soundest casuists doubt like you and me."

It is a fact that the extravagant and conflicting character of some experts' testimonies have cast just reproach in the lay and legal mind upon expert testimony as a whole. A discussion of this condition is in order. First, is it to be noted that the condition has arisen mainly from the testimonies of handwriting experts and expert alienists. To a lesser degree, general medical experts and real estate experts have contributed to the prevailing impression. On the other hand, engineering and chemic experts, dealing as they do with so-called "exact sciences," have, on the whole, maintained a standard of testimony which is above any save nondiscriminating or captious criticism. The public, however, classes all experts together and does not differentiate between kinds of experts. Neither does it analyze the items of honest difference as seen from two meritorious viewpoints. The meritorious experts are classed with the frail.

Second, the frailty of expert testimony is rarely due to deliberate misstatements. Generally the whole trouble arises from the failure of court, counsel, jury, expert, press and public to keep at all times plainly in view the great difference between the statement of expert *fact* and the statement ofexpert *opinion*. Expert opinions are continually being rated as expert facts. Human opinions must ever differ—be they expert or otherwise. But real expert facts are more certain than other facts. Thus, a handwriting expert could say without fear of contradiction that a certain chirography exhibits specified characteristics—the writing itself can be examined and his measurements verified. He is then in the same position as an architectural expert who asserts that a building has a certain ground plan and dimensions. When, however, the handwriting expert asserts, with no further evidence than the writings themselves, that two writings were penned by the same person, he is but stating an expert opinion and not an expert fact. It may be a very valuable opinion and most necessary for the purposes of the trial; but it is, nevertheless, an opinion only. It should be clearly recognized as an opinion; every reason for the opinion should be stated with the opinion; and, if an opposing expert gives a contradictory opinion, it should be clearly stated to be an opinion and the pro and contra reasons specified in such language as to make the subject intelligible to the jury which must decide the question at issue. It is no excuse to point to the incapacity of jurymen in the premises. The jurymen may be trusted to reach the conclusion justified by the conflicting expert evidence. If the conclusion reached be false, the fault lies with the losing expert and counsel in not being properly skillful with their portion of the testimony. The court and jury have the right to expect that the counsel and expert will employ whatever time and labor are necessary for the preparation of their side of the case, so as to render it intelligible, in its salient arguments, to the average mind. Much of the criticism of jurymen is really due to the lack of preparation of the litigants. Time and labor, skill and knowledge, are so difficult to bestow in the preparation and conduct of a case—and it's so easy to say, "My failure is due to another's fault." The wise expert will refuse to serve with careless and unskilled counsel; and the wise lawyer will shun the careless and incompetent expert.

Thirdly, much of the trouble with expert testimony is due to the weakness of the expert in not saying promptly, "I do not know," in answer to what might be called "dictionary" questions in his specialty. No man carries in his mind ***all*** of the data pertaining to his profession—or even to those portions pertinent to the trial in which he may be testifying. If the expert be worthy the name, those data *essential* to his direct testimony; and, in view of the limitations of the human mind, is perfectly justified in saying, "I don't know," with respect to unessentials. That it may wound his pride is beside the point, as court procedure is not concerned with the self-love of experts. The experts—and they, alas, are too numerous—who don't know, but who strive to conceal the fact, either make guesses if they be reckless; or attempt to evade the issue if they be crafty. In both cases they are weak and unworthy.

Fourthly, the ideal expert will, *caeteris paribus,* have a perfectly logical mind; and will successfully resist the guileful methods of opposing counsel in his endeavor to befog and pervert the expert's premises and conclusions. The expert is usually beguiled by the hackneyed artifice of partial or ambiguous truths. The

cross-examiner's question will contain not only a direct question; but also one or more additional statements. The "yes" or "no" in answer to the direct questions leaves the wrong impression with regard to the additional statements. It is absolutely untrue to say, as does the cross-examiner, that any question may be answered "yes" or "no." One may illustrate by the question put to the prisoner accused of stealing a pig: "Did you steal this pig at night?" Obviously either "yes" or "no" carries the admission of theft. This homely illustration portrays clearly the method used so frequently with far more skill and artfulness by many cross-examiners. But if the expert be so beguiled, he is but silly. It is the business and duty of the expert to have his mind so orderly and his case so logically prepared that he will instantly perceive this ancient and moss-grown pitfall of the wily cross-examiner. He will evade it by answering the question as ostensibly asked; and will then insist upon continuing his answer sufficiently far to dispel the designedly erroneous inferences. Here, if he be at all tactful, he will be assisted by his own counsel and the court—but they can only protect his rights after he himself has claimed them.

Whenever an expert is caught in other pitfalls, he usually deserves his discomfiture. A familiar plan of the cross-examiner is to show where the expert's statements on the witness stand are not in harmony with opinions expressed in publications made by the expert. This line of argument is not conclusive, however, for the expert may merely have been quoting others; or may have altered his opinions. Nevertheless, it may be more or less injurious to his case. As another illustration, one may mention a case in the Philadelphia courts where a well known alienist testified that from the horizontal outline of a head at the forehead level he could determine the general mentality of a person. He was subsequently shown a number of such diagrams pricked on paper by the familiar hatters' machine for this purpose. One such diagram, declared by him to be the diagram of an idiot, was subsequently proved to be a diagram of his own head. However, his analysis of this diagram was probably correct.

The expert should avoid unnecessary emphasis of heat—which tend even though falsely, to give the impression of partisanship; but should testify quietly and with simple dignity in good English. He should indulge in no sharp rebuke or repartee. His rebuke should be by inference; and his repartee in the words and with the manner of matter-of-fact statement. This is true no matter how great his provocation.

Fifthly, the expert has often been willing to serve for such an absurdly small and pitiful fee as to preclude the possibility of the extensive care, thought and labor incident to the preparation of a case for court. In chemical work there is absolutely no parallel between analyses made for commercial purposes and analyses made for court. Yet the State of Pennsylvania has, through its agents, offered the magnificent renumeration of 50 cents per determination and $5 per day for court work in pure food and drug cases. Further comment is unnecessary.

Experience has shown that it may be necessary to give as much as three months hard work to the preparation of a single expert chemic case. One of the chiefs of division of the U. S. Bureau of Chemistry has said (privately) that if he could have a year to prepare each case, he might pose as a chemic expert. While this statement was excessive and made for emphasis of an important truth, it serves

to impress the right ideals and practice in the premises. While no exact time can be defined as the maximum for the preparation of chemic evidence, the general principle may be laid down that it requires so much time and expert skill that fees at least ten times as large as those demanded for the best commercial work should serve as the base price; and that, as with lawyers, physicians and surgeons, the chemists' time and skill should be further rewarded according to his demonstrated efficiency.

Sixthly, experts have often brought discredit upon themselves and their kind by attempting to carry their testimonies as experts beyond that field in which they are strictly qualified as experts. The courts are also to blame for this. The public is beginning to perceive that the present chaotic condition of affairs in governmental inquiries into the effect of sodium benzoate upon the public health is due to this cause. Since the two views so prominently before the public are essentially contradictory, the public knows that at least one view is false—and the shrewd suspicion has arisen that neither side has proved its case. No better example could be given of the frailty of the principle of the rule of the Expert Overlord; nor of the good that would ensue should these opposing experts be placed in such a position that their contentions would have to be conducted and decided under the admirable and orderly process of our American judicial procedure. Let us hope that some great lawsuit will come to clarify this now hopelessly entangled condition of one of the most important economic and hygienic problems in the world today.

THE RATE OF DISINTEGRATION OF PILLS.

L. D. HAVENHILL AND A. E. STEVENSON.

During the past year we have been asked to determine the fitness for medicinal use, of a number of samples of old pills. As a first step in this investigation it was decided to ascertain their rate of disintegration, since it is generally believed that old pills disintegrate, if at all only very slowly.

We endeavored to make the conditions of our experiments as favorable at least as those existing within the human body. In order to secure continued action from the disintegrating solution the pills were placed in wire cloth baskets and suspended in test-tubes about one-half inch below the surface of the 20 cc. of solution. These test-tubes were placed in a water bath and a temperature of from 37° to 38° C. maintained throughout the experiment. The pills were rubbed gently with a glass rod about every five minutes to note the progress of disintegration as well as to simulate the action of the muscular coats of the digestive organs. The effect of this manipulation with the glass rod was subsequently ascertained to have shortened the time of disintegration about 20%.

Two disintegrating liquids were used: No. 1, an aqueous solution containing 2% of pepsin and 0.25% of hydrochloric acid, and No. 2 distilled water. The results given are the means of several trials. The maximum variation in any case was not more than 10% of the mean result. The samples examined were

forwarded to us in their original containers and through the courtesy of the manufacturers we are able to give in a number of instances the date of manufacture. The results obtained together with such other data as might influence the rate of disintegration is given in the following table:

Number	Kind of Pill	Av. time for disintegration in minutes		Kind of Coating	Average Diameter in Mm.	Average Weight in Mg.	Date of Mfg.	Supply sufficient to last (in years)
		Pep. Sol.	Wat.					
1	Emmenagogue	60	55	Gelatine	7.7x4.9	140	?	?
2	Morphine Sulph., 1-8 gr...	20	14	Gelatine	3.1	26	?	?
3	Iron Strych. & Arsenic tab.	15	9	Sugar	6.1x3.3	140	?	?
4	Acetan. & Quin. Comp. tab.	12	9	Sugar	10 x5.4	420	?	?
5	Antimalarial tablets	79	69	Chocolate	10.6x4.7	430	?	?
6	Creosote Comp. tablets....	30	42	Chocolate	9x4.1	310	?	?
7	Opium, ½ gr. tablets.....	30	28	Sugar	7.3x3.5	150	1897	233
8	Hinkle's Cascara Comp....	77	68	Sugar	6.6	220	?	?
9	Morphine Sulph., ⅛ gr....	14	10	Sugar	4.9x3.5	50	?	?
10	Cathartic	84	79	Gelatine	9.5x6.5	270	?	?
11	Strychnine, 1-20 gr.....	24	21	Gelatine	4.2x2.9	40	1890*	230
12	Camph. and Opium., 3 gr..	76	72	Gelatine	9.2x5.9	230	1890*	25
13	Asafetida	180	150	Gelatine	9.4x6.2	280	1899	23
14	Ichthyol, 1½ gr.....	180	170	Gelatine	8.6x4.9	180	1890*	32
15	Aloes and Iron.....	61	62	Gelatine	9.4x6.3	270	1890*	32
16	Warburg's Tr.....	67	67	Gelatine	9.8x6.3	260	1891	32
17	Antidyspeptic	65	70	Gelatine	8.8x6.1	270	1889	30
18	Warburg's Tr.....	86	80	Gelatine	8.9x5.9	230	1890*	46
19	Strychnine Nitrate, 1-40 gr.	27	27	Gelatine	4.2x3.2	40	1890*	43
20	Morph. and Atrop.....	18	13	Gelatine	4.5x2.9	50	1889	24
21	Antil Chill	160	530	Gelatine	9.2x6.7	330	1890	35
22	Aphrodisiac	77	66	Sugar	9.3x6.6	340	1890*	25
23	Strychnine Nitrate, 1-30 gr.	25	25	Gelatine	4.5x3.1	30	1899	120
24	Arsenious Ac., 1-20 gr.....	23	22	Gelatine	3.9x2.8	40	1890*	87
25	Nitroglycerin, 1-50 gr.....	26	22	Gelatine	4.2x3.2	40	1890*	53
26	Hepatic	71	65	Gelatine	9.2x6.8	360	1890*	67
27	Calomel, ¼ gr.....	25	20	Gelatine	3.9x2.7	40	1890*	420
28	Pep. Bi. and Strych.....	79	77	Gelatine	9.5x6.3	340	1890*	46
29	Strych. Comp., 2 gr.....	54	52	Gelatine	8.4x5.6	200	1888	39
30	Morph. Sulph., ⅛ gr.....	25	26	Gelatine	4.5x2.9	40	1902	25
31	Opium, 1 gr.....	51	45	Gelatine	6.8x4.1	90	1890*	25
32	Ergotin, 2 gr.....	59	64	Gelatine	9.5x7.2	370	1886*	56

*Made prior to date indicated.

A little more than 50% of the pills were more rapidly disintegrated in water than in pepsin solution. It was thought that the colloidal nature of the pepsin might have been responsible for this but repeated experiments with the solution to which 4% of peptone had been added failed to confirm this opinion. In only one instance, Anti Chill pill No. 21, did the kind of coating make any material difference in the rate of disintegration in the different liquids. This pill had a thick coating of gelatin and required 530 minutes in water or nearly four times as long as in the pepsin solution. Fifty-six per cent. of the pills in pepsin solution and 53% in water were disintegrated within 60 minutes and in each solution 90% were disintegrated within 90 minutes. In most of the cases where disintegration was slow the therapeutic nature of the pill was such that this was not seriously objectionable.

In conclusion it may be said that our results tend to show that the rate of

disintegration depends primarily upon the composition, size, and coating and that the age exerts only a slight influence. These samples were collected from twelve different drug stores, and assuming the demand to be the same in the future as in the past it is interesting to note that the original supplies would be sufficient to last from 23 to 420 years.

NOTE ON CAPSICUMS.

WILBUR L. SCOVILLE.

For many years pharmacists have appreciated the fact that different varieties of ginger vary in pungency and flavor, but that capsicums vary in the same way and to a much greater extent, seems to have escaped attention.

The pungent principle of Capsicum is capsaicin, a crystalline body which E. K. Nelson says is so hot that one drop of a solution 1 in 1,000,000—or less than one-millionth of a grain—will make itself known to the tongue. He found one variety of capsicum to contain 0.14% of this principle.

H. C. Irish in a "Revision of the Genus Capsicum" describes 42 garden varieties and quotes authorities to the statement that the different varieties readily degenerate or change under cultivation or the lack of it. Hence the pungency of capsicum varies not only with the species, but with variations in growth or cultivation. Paprika, one of the mildest forms, has been grown quite free from capsaicin—in short, a non-peppery pepper. And while Tabasco by another name might be quite as hot, yet the Tabasco species may not always come up to its reputation.

In other words, the pharmacist cannot, by specifying a certain species of capsicum, be sure thereby of securing the most active medicinally. The best method of selection appears to be the physiological test—which will be referred to again below.

In commerce the greater demand for capsicum is as a condiment, and for the preparation of sauces, pickles, etc. In these a full rich flavor is desired as well as pungency. Supplies for such purposes are marketed as "Japan Chillies," "Zanzibar Chillies" and "Mombasso Chillies." Doubtless there are other brands, but these appear to be the leading ones. A limited number of tests on these three brands shows that Japan Chillies have a very rich and full flavor, but are not very pungent, as compared to the others. They command a higher price, and make a superior condiment. Zanzibar Chillies came next in pungency and flavor, and Mombasso Chillies are the most pungent and the poorest in flavor.

Physiological tests are tabooed in some quarters, yet when the tongue is sensitive to less than a millionth of a grain it certainly has an advantage over the analytical balance, which has a sensitiveness far below that, and since it is not necessary to compare different capsicums in terms of percentage of capsicum, when a direct ratio of drug to drug expresses all that is needed, the physiological test offers here a ready and satisfactory means of selecting capsicum.

[1]Journal Ind. and Eng. Chem., 1910, page 419.
[2]Report Mo. Bot. Gardens, 1898, page 53.

The method I have used is as follows: One grain of ground capsicum is macerated over night in 100 cc. of alcohol. After thorough shaking, filtered. This alcoholic solution is then added to sweetened water in definite proportions until a distinct but weak pungency is perceptible on the tongue.

By this method, Japan Chillies tested 1 in 20,000 to 1 in 30,000, Zanzibar Chillies 1 in 40,000 and 1 in 45,000 (two lots), and Mombassa Chillies 1 in 50,000 to 1 in 100,000. From a limited number of tests the Mombassa brand appears to be decidedly stronger in capsaicin. We have not had it under observation long enough to decide on a limit of acceptibility that will represent the average of the drug, but there appears to be no trouble in obtaining it of a strength of 1 in 50,000 or above.

Oleoresin of capsicum may test 1 in 150,000 and upwards. When used as a rubefacient, flavor is of no consequence, but a high capsaicin content is desirable.

It may be of interest to state that commercial capsicums vary also in fat-content and color to a marked degree. Oleoresins were examined which contained as little as 5 per cent. of fat insoluble in alcohol, while others contained above 50 per cent., yet the more pungent oleoresin (based on the entire mixture) were those containing considerable fat. The fat in some instances was a marked green —quite free from red; in others it was orange and in others a deep red; no relation of color or fat to pungency could be observed.

LABORATORY OF PARKE, DAVIS & CO., DETROIT.

DISCUSSION.

Mr. Beringer said that much fat would always be found in a well-developed fruit containing well-developed seeds, and that in the selection of capsicum we should avoid large matured fruits in which the seeds were fully developed.

Mr. Raubenheimer inquired of the author of the paper whether he had discovered any relation between the color of the ground capsicum and the finished tincture? In his experience he had not been able to discover any such relation. No matter what was the tint of the powdered drug the tincture always had a reddish color.

Mr. Eldred inquired if the quantity of fat in the oleoresin did not bear some relation to the pungency?

Mr. Scoville, in reply, stated that his work had begun as a study of the oleoresin, separating the fats insoluble in alcohol. He found the fats to vary from 5 to 50 percent. One containing 5 percent of fat was comparatively weak in pungency, those having the larger pods being more pungent, though he did not believe that this was due to their containing a large amount of fat; neither could he discover any relation between the pungency and the color of the capsicum.

The only test he had found to be satisfactory was the physiological test. He had examined a number of samples which tested 1 to 100,000.

THE ASH CONTENT OF DRUGS.

M. I. WILBERT.

In recent years there has been evidenced a growing disposition to place considerable reliance on the ash content of drugs as an aid in determining the nature and purity of the product under examination.

With a view of ascertaining what if any uniformity exists in the permissible

ash content of official drugs an analysis of the requirements made in 10 of the recently published pharmacopœias was made and the maximum ash content of some of the more widely used drugs is herewith presented in the form of a table.

Restricting the permissible quantity of ash in connection with vegetable or crude drugs is a comparatively modern requirement. It was introduced in the second edition of the German Pharmacopœia, published in 1882 and also appears in connection with a limited number of the drugs described in the U. S. P. of the same period. The number of official limitations for ash was increased but slowly and in the German Pharmacopœia for 1900 we find but twelve while in the corresponding U. S. P. VIII there are twenty such requirements in connection with the monographs for crude drugs.

The Netherlands Pharmacopœia published in 1905 appears to have been the first of the more widely known pharmacopœias to include an appreciable number of ash determinations; a total of 41.

In the Ph. Austr. VIII, published in 1906, this number is increased to 147, the maximum up to the present time, though the aggregate of the Ph. Helv. IV is nearly if not quite as great.

The Ph. Svec. IX, published in 1908, contains but a comparatively few definite figures, and the Ph. Hung. III, published in 1909, despite the fact that it follows the Austrian Pharmacopœia in many of the official requirements, includes but a limited number of limitations for ash.

The German Pharmacopœia which for some decades appears to have served as a model for the elaboration of our own U. S. P. has been continued within conservative lines and the new D. A. B. V. published in 1910 contains but a total of 34 requirements for ash content.

The impracticability of deducing any definite generalizations from the permissible limitations for ash included in the several pharmacopœias is well illustrated by the appended table. For many of the drugs the figures vary from 10 to 100 per cent. and in the limited number of cases where there is little or no variation, lupulin, for instance, the figures given have been found to be altogether too low for the commercially available product.

The variation in the actual ash content of drugs necessarily depends on many factors that are entirely beyond the control of the pharmacist or the dealer in drugs but the frequently observed variation in the ash content of the same sample, or lot of a drug is due to causes that are deserving of careful consideration on the part of the revisers of the Pharmacopœia. The fundamentally important factors for securing uniformity are to be sought in the method of incineration and the method of sampling employed therewith.

In the routine work of the ordinary analytical laboratory it is impracticable to incinerate more than 1 or 2 gm. of a sample of crude drug and it is quite apparent that it would be difficult indeed to secure a representative sample of a root, bark, leaf or herb that could be relied upon without resorting to comminution and subsequent mixing of an appreciable quantity of the drug.

This difficulty of securing representative samples of many crude drugs has no doubt deterred the revisers of some of the more recent pharmacopœias from adopting the ash content factor more freely.

It is generally agreed that the exact method of determining the residual ash should be described so as to obviate, if possible, the likelihood of the residue retaining an undue amount of unconsumed carbon.

The Ph. Austr. VIII despite the fact that it includes upwards of 150 limitations for the ash content of drugs does not provide a method for determining this rather important requirement, and the several critics of this Pharmacopœia have not failed to assert that the commission in charge of the revision adopted theoretic rather than practical standards for many of the pharmacopœial drugs.

The Ph. Helv. IV directs that ash determinations are to be made by heating from 1 to 2 gm. of the substance at first moderately, with a low flame, and then gradually increasing the temperature until the residual ash is free from carbon.

The nature of the container in which the substance is to be incinerated is not specified and no provisions are made for aiding the combustion of protected carbon particles.

The new German Pharmacopœia process is much more complete. It directs that a suitable quantity of the substance is to be incinerated in a recently heated and tared crucible and in the event that complete combustion of the carbon particles is not brought about by continued, moderate, heating the material is to be leached out with hot water and the residual carbon again heated, as before. The resulting solution is subsequently evaporated and the weight of the dry residue is added to that of the ash.

This, Ph. Germ. V, method has been liberally criticised, many pharmacists believing that the leaching out method is much more time consuming than the methods which involve the use of clean sand for distributing the particles of carbon or the use of oxygen carriers such as nitric and oxalic acids for facilitating combustion.

Considerable difference of opinion appears to exist regarding the desirability of determining the ash, and other analytical factors, on the air dried drug or on the drug dried to constant weight in an exsiccator.

In view of the fact that it is the air dry drug that appears in commerce and is generally used in the making of galenical preparations as well as dispensing it would appear preferable to base pharmacopœial requirements on the commercial drug and to add such other restrictions as may be found necessary to limit the percentage of contained moisture.

This is apparently the view taken by the revisers of the German Pharmacopœia as that authority now requires that the official tests are to be applied to the air dried substances unless otherwise directed.

From the available evidence it would appear that the determination of the ash content of official drugs is practicable and important in connection with non-structural drugs, like gums and resins, pollen grains, seeds, spices and powdered drugs generally.

It is not generally applicable to leaf drugs, barks or roots in the uncomminuted form because of the difficulty of sampling.

To insure correlating results the method to be employed must be described, and, other things being equal, this method should be one that can be easily followed by retail druggists ordinarily well equipped for work of this kind.

TABLE SHOWING THE MAXIMUM ASH CONTENT OF SOME WELL-KNOWN DRUGS INCLUDED IN 10 OF THE RECENTLY PUBLISHED PHARMACOPŒIAS.

Title of Drug.	Ph. Germ. V	Ph. Hung. III	Ph. Ital. III	Ph. Fr. V	Ph. Svec. IX	Ph. Helv. IV	Ph. Aust. VIII	Ph. Belg. III	Ph. Ndl. IV	Ph. U.S.P. VIII
Acacia	5.0	5.0	4.0	...	5.0	4.0	3.0	5.0	4.0	4.0
Adeps Lanæ	0.1	0.05	...	...	...	...	...	0.05	0.10	0.30
Aloe	1.0	...	2.0	1.5	...	1.5	1.0	...	1.5	...
Althæa	...	...	...	...	...	6.0	6.0	7.5	7.0	...
Amylum	1.0	0.5	1.0	1.0	...	0.5	0.5	1.0	1.0	...
Anisum	10.0	...	...	...	...	10.0	10.0	12.0	...	...
Asafœtida	15.0	...	10.0	10.0	10.0	20.0	10.0	10.0	10.0	15.0
Belladonnæ Folia	15.0	...	...	...	...	15.0	15.0	...	...	...
Benzoinum	2.0	...	2.0	2.0	...	1.5	2.0	...	2.0	2.0
Calumba	...	...	...	...	...	8.0	6.0	...	...	...
Cantharis	8.0	...	7.0	...	...	8.0	8.0	...	9.0	8.0
Capsicum	6.5	5.0	...	...	...	6.5	6.5	...	...	...
Carbo Ligni	5.0	...	2.0	...	...	2.0	...	...	2.0	...
Cardamomum	...	...	...	...	...	10.0	8.0	...	8.0	4.0
Carum	8.0	...	...	...	...	8.0	7.0	...	...	8.0
Caryophyllus	8.0	...	...	...	...	7.0	8.0	...	6.0	8.0
Cinchona	...	...	6.0	...	...	6.0	6.0	...	8.0	...
Cinnamomum Zeylanicum	5.0	...	...	...	...	5.0	5.0	7.0	8.0	4.0
Coccus	...	...	...	...	...	6.0	...	...	...	6.0
Cubeba	8.0	...	9.0	...	...	8.0	9.0	...	10.0	...
Digitalis	...	...	...	...	...	10.0	10.0	12.0	...	...
Ergota	...	...	5.0	...	...	5.0	5.0	...	5.0	...
Fœniculum	10.0	...	...	...	...	10.0	10.0	12.0	...	...
Gelatina	2.0	...	2.0	2.0	...	2.0	2.0	2.0	3.0	...
Gentiana	...	...	...	...	...	6.0	5.0	7.0	6.0	...
Glycyrrhiza	...	...	...	...	...	6.0	6.0	7.5	6.0	...
Gossypium Purificatum	0.3	...	0.3	0.4	...	0.5	0.5	0.3	0.3	0.3
Granatum	...	...	...	...	...	15.5	10.0	...	15.0	...
Hydrastis	...	...	6.0	...	...	6.0	6.0	...	6.0	...
Hyoscyamus	24.0	...	...	...	...	...	...	...	...	...
Ipecacuanha	...	...	4.0	...	...	4.0	5.0	...	6.0	...
Jalapa	6.5	...	4.5	...	...	6.5	5.0	...	...	...
Linum	5.0	...	6.0	...	...	5.0	5.0	...	...	...
Lupulinum	...	...	10.0	...	...	10.0	10.0	...	...	10.0
Lycopodium	3.0	...	4.0	...	...	3.0	3.0	4.0	5.0	5.0
Manna	3.0	...	3.5	...	4.0	3.0	4.0	...	...	...
Mel	0.8	...	0.4	...	0.5	0.8	0.4	0.5	...	0.3
Myrrha	7.0	...	6.0	...	6.0	6.0	6.0	6.0	5.0	...
Nux Vomica	3.0	...	...	...	...	3.5	3.0	...	...	...
Opium	...	...	6.0	...	...	6.0	6.0	...	...	...
Rhamnus Purshiana	6.0	...	...	...	...	...	...	...	10.0	...
Rheum	12.0	...	12.0	...	...	13.0	12.0	...	12.0	...
Saccharum	0.1	...	...	0.075	...	...	...	...	0.1	...
Saccharum Lactis	0.25	...	...	...	...	0.2	...	...	0.1	0.25
Scilla	5.0	...	...	...	...	5.0	8.0	...	...	...
Senna	12.0	...	...	...	...	12.0	10.0	12.0	8.0	...
Sinapis	...	...	5.0	...	...	5.0	5.0	5.0	8.0	...
Stramonium	20.0	...	...	...	...	...	...	...	...	...
Valeriana	...	...	...	...	...	12.0	10.0	15.0	...	...
Zingiber	7.0	...	...	...	...	7.0	5.0	...	8.0	...

DISCUSSION.

Mr. Beringer stated that the figures for ash content in Mr. Wilbert's paper were very similar to other compilations, and inquired whether any of the results given had been confirmed by his own experiments or were taken from published results.

Mr. Wilbert stated that both the Netherlands and Austrian Pharmacopœias had been severely criticised on their generally low ash content requirement for drugs and that the figures cited were largely academic. Practically all the pharmacopœial standards are in sub-

stantial agreement for the ash content of Lupulin, but are not in accordance with actual commercial conditions, which are nearly twice as high as pharmacopœial standards.

Observations relating to ash content, in order to be of practical value, must cover hundreds of thousands of samples, be carried over a series of years and made by a number of observers.

In the Digest of Criticisms of the Hygienic Laboratory an effort had been made to compile ash determinations recorded by different individuals, and also the work done in European laboratories in connection with spices. For the majority of vegetable drugs he thought it necessary to be content with ash determinations, permitting rather wide limitations for drugs in the powdered form.

THE COMPOSITION OF GELSEMININE.

L. E. SAYRE.

The alkaloids of Gelsemium have been investigated at intervals since 1869, by Wormley, Gerrard, Robbins, Sonnenschein, Thompson and others. These valuable contributions have been referred to in previous papers, published in the proceedings of this association since 1907.

It was not until 1887 that F. A. Thompson announced the existence of a second alkaloid in the root which he named Gelseminine. The study of this second principle was left by Thompson for others who might in the future have the time and the inclination to do it. The result of my study of this principle seems to indicate, as stated in former papers, that the Gelseminine of Thompson is not a definite and simple body. Recent study confirms this opinion. Other confirmation, than my own work, has been given by a recent analyst, Charles Watson Moore, whose paper was published in the Jour. Chem. Soc'ty, Nov., 1910, No. LXXVII, p. 2223. This author, after mentioning the less important principles of the alcoholic extract states:

"The portion of the alcoholic extract soluble in water from which the resin has been removed contained scopoletin (a monomethyl ether of esculetin) which was present in a free state and also a glucoside, together with some sugar. It also yielded three alkaloidal products, one of which was obtained in a pure crystalline form corresponding to Gelsemine. The other two were amorphous and non-crystalline, the one to which the name Gelseminine has been given being more basic than the other."

This unexpected confirmation of my observations, previously made, is especially gratifying.

In the April issue of the Bulletin of the A. Ph. A. an article appears by Kimberly, Roberts and Vanderkleed, in which a suitable assay of Gelsemium is discussed. These men state that the activity of the drug depends primarily upon the so-called alkaloid Gelseminine, and only secondarily upon the more readily obtained Gelsemine, which exists in much larger proportion. These investigators fail to recognize the presence of three alkaloids, but this does not detract from their valuable contribution. The existence of three alkaloids, however, makes the assay of the drug still more complicated. A chemical assay can be made reliable only when we *know* the principles we have to consider.

During the past year a further study of this non-crystalline alkaloid, gelseminine, has been attempted. For this investigation, crude products were furnished by Chas. E. Vanderkleed, of the Mulford Laboratory. These products consisted of the crude alkaloids from 50 pounds of the drug, as follows:

Gelsemine, 0.44 gm.; Gelseminine, 6.4 gm.

Special attention was given to the latter. The process for the separation of these, although given in former papers, may be briefly outlined. The concentrated alcoholic extract is treated with acidulated water. The resulting acidulated aqueous solution is thoroughly washed until all of the so-called gelsemic acid is removed. The aqueous solution is then made alkaline and all of the alkaloid removed by repeated shaking with ether-chloroform. After removal of the solvent by evaporation of the ether-chloroform solutions, the residue (crude alkaloids) is separated into crystalline and non-crystalline alkaloidal portions by repeated solution in alcohol and careful evaporation in vacuo., thus allowing the crystalline gelsemine to slowly deposit. The mother liquor contains the gelseminine.

This latter alkaloid, gelseminine, is capable of further separation, I have found. If after all of the gelsemine is entirely removed—which is a tedious operation—it is redissolved in acidulated water and again precipitated with weak solution of ammonia and the precipitate continuously washed with ammonia water it is found to yield alkaloid to that solvent until there is left behind an insoluble portion, this latter portion may be designated Gelseminine. The portion soluble in ammonia, on concentration by means of a hot air blast produces, in thin layer, a reddish yellow scale, strongly alkaloidal, but contains a considerable amount of crystals of ammonium chloride. This contamination is removed by redissolving the scales in water, adding to the solution calcium hydrate. The solution is fanned to a solid concentrate and the solid residue is dissolved in alcohol and filtered. The alcoholic solution is treated with just sufficient sulphuric acid to remove the lime. On filtering and evaporating, the alkaloidal salt remains. For the name of this third alkaloid I would suggest the name of Gelsemoidine.

Permit me to call attention in passing to the confusion which exists at present in commerce, particularly, concerning the alkaloid gelseminine. Under this name is supplied, not the article in question, but the crystalline alkaloid gelsemine. The Germans appear to be responsible for this confusion as gelsemínine appears to be their name for the crystalline alkaloid. My own orders for gelseminine have brought me, from abroad, gelsemine. In a recent issue of a publication on Newer Remedies, gelseminine is described as a crystalline body, and the description given answers to the alkaloid Gelsemine. In the presence of such confusion I would suggest the name of Sempervrine in place of gelseminine, or some other word which will tend to remove the unhappy confusion that now exists.

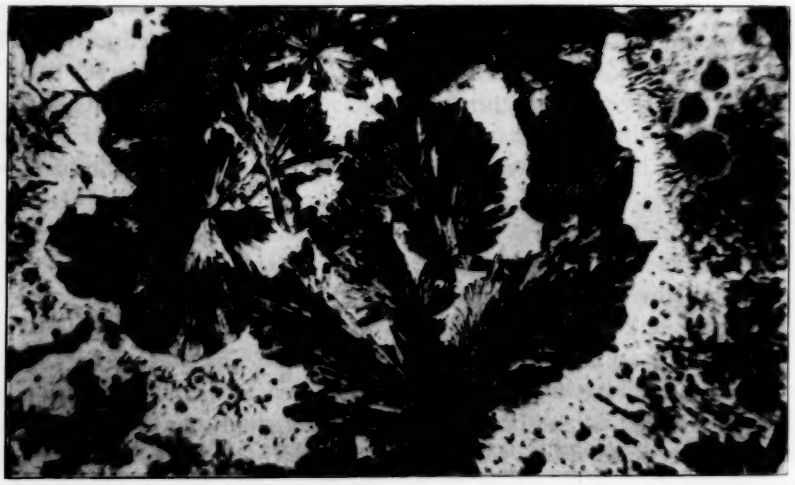
The following color reactions distinguish Gelsemoidine from the other two alkaloids: manganic oxide and sulphuric acid produce with gelsemoidine, first a deep purple. Changing finally to a deep blue. Gelseminine, with the same reagent produces a brown, changing to a brownish pink and finally to a yellow color. Gelsemine produces a crimson, changing to green and finally yellow.

The non-crystalline alkaloids may be further distinguished by their solubility. An aqueous solution of the gelsemoidine hydrochloride, when treated with ammonia water in slight excess will be, after first precipitating, redissolved in the alkaline fluid. Gelseminine when treated in the same manner remains undissolved. Gelsemine hydrochloride when treated similarly goes into solution very slowly but is hastened by warming. Not so with gelseminine hydrochloride.

Many attempts have been made to produce crystalline salts from these two amorphous alkaloids but without success. Gelsemoidine hydrochloride can be obtained in reddish yellow scales which are exceedingly hygroscopic. Gelseminine hydrochloride is on the other hand quite permanent.

PHYSIOLOGICAL RELATION OF THE ALKALOIDS.

Pharmacological experiments have shown that the amorphous alkaloids are many more times toxic than the crystalline gelsemine. It takes 10 milligrams of the gelsemine hydrochloride to cause slight tremors and convulsive movements in



Photograph of Crystals of Gelsemine Hydrochloride. By spontaneous evaporation of alcoholic solution

a guinea pig of medium weight (450 gm.), in 45 minutes, while 3 milligrams of gelseminine hydrochloride will prove fatal to this animal, of same weight in 30 minutes. It has pronounced action on the voluntary muscles, loss of coördination and a paralytic action on the respiration.

1.5 mgs. of gelsemoidine hydrochloride proved fatal to a guinea pig weighing 425 gm. in one and one-half hours, the most pronounced action being upon the voluntary muscles and the respiration. Severe muscular spasms (not tetanic like strychnine) were brought on within 30 minutes. This same alkaloidal salt produced a pronounced stupor on a dog weighing 29 pounds in 45 milligram dose. The action was gradual but rapid.

In all of the physiological experiments it was noted that the two non-crystalline alkaloids in small therapeutic doses had an hypnotic and sedative action.

I am indebted to V. H. Moon of the Pharmacological Laboratory for the following statement as regards the action of the non-crystalline alkaloids of Gelsemium:

"The toxic action of the two alkaloids is almost identical. The muscles become paralyzed and the body limp and relaxed. The respiration is slowed, becomes jerky, labored and irregular and finally ceases apparently from paralysis of the motor endings in the respiratory muscles. The heart's action is slowed and in the later stages, often irregular but continues strong until after respiration ceases. The constrictor urethrae muscles are also paralyzed, causing frequent urination and dribbling. The smallest lethal dose for a 35 gm. frog was .003 gramme and the largest dose which was followed by recovery was .004 grammes. For the 340 gramme guinea pig, the smallest fatal dose was .001 gramme and the largest dose followed by recovery was .002 gramme.

"The medicinal effect of gelsemoidine in no way resembles the toxic effect, but consists of a quieting, sedative action, followed by a hypnotic effect if continued. The following typical example illustrates: A 13 kgm. dog was given a subcutaneous injection of .015 grammes gelsemoidine. Almost immediately the dog became less restless and was disposed to lie prone with head resting on paws; he was apparently normal otherwise and was attentive when spoken to. The respiration rate dropped from 42 to 22 and the heart rate from 137 to 114. This effect was partly due to the fact that the animal was less active. Within an hour the hypnotic effect was evidenced, the animal slept continuously and when roused would lie down immediately and go to sleep again unless prevented. A second injection of .015 grammes one hour later made the hypnotic effect more profound and reduced the heart rate from 114 to 41. Respiration from 22 to 20. A third injection of .015 grammes was given forty-five minutes later, after which the dog immediately went into profound sleep. When roused, he was attentive and wagged the tail as usual but was slightly unsteady on the feet. Twenty minutes after this dose the respiration was 20 per minute and somewhat labored. The heart rate raised to 50. When walking or standing the fore feet would suddenly collapse causing the animal to fall on its face. Muscular control would be regained only to be lost again in a moment. This was accompanied by loss of urethral control. The condition of partial paralysis continued several hours but the dog was apparently normal twenty-four hours later. No attempt was made in these experiments to record the blood pressure nor to determine definitely the exact location of the effect on the nervous system. Only the general physiological effects were sought, but these would indicate that both the cerebrum and the motor endings were affected. As a sedative and hypnotic the new alkaloid Gelsemoidine gives unusual promise, and the therapeutic and physiological effects should be worked out in further detail.

"Some experiments were tried with Gelsemine which is described as *inactive* by some authorities. We secured very decided muscular and nervous effects in guinea pigs from subcutaneous injection of .010 grammes, but these were not carried far enough to state definitely what the physiological effects are. Judgment

should be suspended on this remedy until more definite statements can be made as to its action."

My thanks to Mr. Paul Carl for his valuable assistance in this work is hereby acknowledged.

UNIVERSITY OF KANSAS.

COMPARISON OF THE SENSITIVENESS OF THE FEHLING, THE NYLANDER AND THE PHENYL-HYDRAZINE TESTS FOR THE DETECTION OF DEXTROSE IN URINE.

G. H. MEEKER, PH. D., LL. D.

Preparation of the Dextrose.—The highest purity dextrose prepared by Merck & Co. was used in these experiments.

Owing to the presence of moisture in the dextrose, which would affect the weight of the dextrose when used for the purpose of making percentage solutions, the dextrose was dried to constant weight under a pressure of 125 mm., over calcium chloride, in a vacuum desiccator placed in a thermostat at a constant temperature of 37.5° C. The absorption of water during weighings was prevented by having the dextrose in a glass stoppered weighing bottle.

Date.	Weight.
October 5	26.0951 gms.
October 12	26.0894 "
October 19	26.0868 "
October 20	26.0865 "
October 26	26.0865 "
October 27	26.0866 "
November 2	26.0865 "
November 3	26.0865 "

This table shows that, under the conditions of our experiments, constant weight was reached at the end of fifteen days' drying. Although drying was continued during another fifteen days, there was no further loss in weight.

Preparation of the Dextrose Solutions.—The dextrose solutions were prepared as needed by dissolving weighed quantities of our dried dextrose in the proper quantities of distilled water.

Nylander's Reagent used in these experiments was made as follows:

Bismuth Subnitrate	2 gm.
Sodium Hydroxide	8 gm.
Rochelle Salt	4 gm.
Distilled Water to make	100 cc.

Two kinds of Fehling's Solutions were used in these experiments, as follows:

1. (a) *Copper Solution:*

Cupric Sulphate	34.639 gm.
Distilled Water to make	500.000 cc.

(b) *Alkaline Solution:*

Sodium Hydroxide	175 gm.
Rochelle Salt	60 gm.
Distilled Water to make	500 cc.

Of these solutions equal parts were taken and mixed fresh each day that the experiments were carried on.

2. A dilute Fehling's Solution, as suggested by Prof. Judson Daland, consisting of one part of Fehling's Solution No. 1 and two parts of water.

Methods Employed in Conducting the Tests.—In conducting these comparison tests, the following procedure was adopted: Fresh aqueous solutions of dextrose of known strengths were first prepared. All of these solutions were subjected to each of the four tests under comparison until we reached that dilution of dextrose at which each test failed to respond. The technique adopted was the same as if urine had been employed.

Nylander's Test.—Five cubic centimeters of the dextrose solution are boiled in a test tube. Five drops of the reagent are then added and the boiling continued for three minutes. The appearance of a dark color indicates the presence of dextrose.

Fehling's Test.—(Conducted in same manner for solutions 1 and 2): Ten cubic centimeters of the reagent are boiled at least two minutes in a test tube, and then carefully examined to see that no deposit has formed, thus showing that the reagent is not contaminated by a reducing substance. Fifteen drops of the dextrose solution are then added and the mixture slowly brought to a boil, when the appearance of a red or yellow precipitate indicates the presence of dextrose in the solution.

After several preliminary tests it was found that if more than fifteen drops of urine, containing dextrose, are added to the reagent a dirty green, non-characteristic appearance is produced. Consequently the above amount was chosen for these tests to correspond to the maximum quantity of urine that can be employed in the Fehling tests.

Phenyl-hydrazine Test.—Half fill a beaker of convenient size with water and then set it on a tripod and heat to boiling. Half fill a six inch test tube with the dextrose solution; make the solution slightly acid with acetic acid; and then set the test tube with its contents in the water in the beaker. While waiting for the water to boil, prepare the phenyl-hydrazine reagent (fresh for each experiment, as it does not keep well). Weigh out, roughly, one gram phenyl-hydrazine hydrochloride and two grams sodium acetate; mix the salts; dissolve them in ten cubic centimeters of distilled water; acidulate the solution by the use of about five drops of strong acetic acid; and, finally, filter to clarify. After the water in the beaker has boiled for about five minutes, observe the contents of the test tube and filter if necessary. Measure into a test tube about ten cubic centimeters of the clarified solution under examination and add five cubic centimeters of the prepared, clear, filtered reagent. Mix well and then place in the boiling water in the beaker and continue to boil for one hour. Remove the test tube and allow to cool thoroughly, when, if dextrose be present, a yellow crystalline precipitate will appear.

This precipitate under the microscope appears as yellow, needle-shaped crystals often arranged in rosettes, fans or sheaves.

Results of the Experiments.—The results of the experiments are shown in the accompanying table:

TABLE SHOWING THE SENSITIVENESS OF THE FOUR TESTS.

Percentage Strength of Dextrose Solutions	Fehling's Test (No. 1—ordinary)	Fehling's Test (No. 2—dilute)
0.5	Positive	Positive
0.25	Positive	Positive
0.125	Positive	Positive
0.0625	Positive, after standing 5 minutes	Positive
0.03125	Positive, " " " "	Positive, after standing 5 minutes
0.015625	Positive, " " " "	Positive, " " " "
0.01	Positive, " " " "	Positive, " " " "
0.009	Positive, " " 10 "	Positive, " " " "
0.008	Positive, " " " "	Positive, " " " "
0.007	Positive, " " " "	Positive, " " 10 "
0.006	Positive, " " " "	Positive, " " " "
0.005	Positive, " " " "	Positive, " " " "
0.004	Positive, " " 15 "	Positive, " " 15 "
0.003	Positive, " " " "	Positive, " " " "
0.002	Positive, " " " "	Positive, " " 30 "
0.001	Positive, " " 20 "	Positive, " " " "

Percentage Strength of Dextrose Solutions	Phenyl-hydrazine Test	Nylander's Test
0.5	Positive before cooling	Chocolate Coloration
0.25	Positive " "	Dark Amber "
0.125	Positive " "	Dark Amber "
0.0625	Positive after "	Light Amber "
0.03125	Positive " "	Light Amber "
0.015625	Positive " "	Negative
0.01	Positive " "	
0.009	Positive " "	
0.008	Positive " "	
0.007	Positive " standing ½ hour	
0.006	Positive " " ¾ "	
0.005	Positive " " 1 "	
0.004	*Negative " " 1 "	
0.003	*Negative " " 1 "	
0.002	*Negative " " 1 "	
0.001	*Negative " " 1 "	

*A deposit formed; but microscope showed no characteristic crystals.

Conclusions.—From the above experiments we concluded:

1. That Nylander's test is of no value for proportions of dextrose under 0.5 per cent.

2. That the ordinary strength of Fehling's solution is the most sensitive of the four tests we have examined and that even with a dilution of 0.001 per cent. it still yields positive results after standing twenty minutes.

3. That the dilute Fehling's solution shows a high sensitiveness and is in this respect slightly superior to the phenyl-hydrazine test.

4. That the phenyl-hydrazine test shows a high sensitiveness and that its limit of sensibility is about 0.005 per cent. after standing one hour.

Practical Application.—With regard to sensibility, the Fehling test and the phenyl-hydrazine test are both so satisfactory that they leave nothing to be desired

for clinical purposes. The Fehling test is superior to the phenyl-hydrazine test in ease of execution. The phenyl-hydrazine test is superior to the Fehling test in the non-fallacious character of its findings. We advocate the habitual use of the Fehling test to disclose the freedom of urine from dextrose. If, however, any urine be encountered which reacts positively with the Fehling test, said urine should then be subjected to the phenyl-hydrazine test to make certain that the positive reaction obtained by the Fehling test was caused by dextrose and not by one or more of the many substances which may be present in urine and react toward Fehling's test like dextrose.

In conclusion I desire to express my appreciation of the excellent services rendered during the conduct of the work by my assistant, Dr. C. J. Stamm.

MEDICO-CHIRURGICAL COLLEGE, PHILADELPHIA.

ALWAYS BLAME THE BOARD.

Boards of pharmacy are made up of human beings pretty much like the ordinary citizen. As individuals, they are liable to make mistakes and even in council, with the exercise of the best of care and judgment, errors are certain to occasionally occur. The interesting question, however, comes when it must be decided who shall be the judge of right and wrong acts and who shall set up the standard by which the board of pharmacy is to be measured. Our editorial experience, which dates back almost as far as the average board of pharmacy, and the experience of other pharmaceutical journals shows that pharmacists are always ready to judge of the acts of a board of pharmacy and are quick to give their decisions, particularly when, in their own minds, it calls for criticism. We have seen boards of pharmacy blamed for the scarcity of drug clerks, for the high price of salaries, for the number of drug stores for sale, for the close proximity of drug stores, for cut rate prices, for the low wages paid clerks, for the number of clerks out of employment, for the annual or bi-annual re-registration fee, for the necessity of attending a college of pharmacy, for interchanging certificates with other boards, for not adopting reciprocity in registration, for paying the secretary of the board a salary, for letting women in pharmacy through, when men making the same average would not have been passed, for having it in for women in pharmacy and denying them registration on the required percentage in examinations and for a long list of other things that need not be mentioned here. Our experience with boards of pharmacy convinces us that as individuals and in their official capacity the board members are anxious to do the very best they can for the welfare of pharmacy in the state concerned.

We are not calling attention to the criticism of boards of pharmacy with a view of having the practice discontinued. If anything, it should be encouraged. It acts as a safety valve for disgruntled pharmacists and does not harm the board. The board member who cannot stand criticism is unqualified for a position as a state officer. The board which escapes criticism must be inactive and the law under which it exists a dead letter.—*Meyer Brothers Druggist.*

Section on Education and Legislation

Papers Presented at the Fifty-Ninth Convention

REPORT OF THE COMMITTEE ON DRUG REFORM.

L. E. SAYRE, CHAIRMAN.

This is the second time the Committee on Drug Reform with its present personnel has had the honor of reporting to the American Pharmaceutical Association. The year has been one of activity in political lines. Notwithstanding the immense amount of drug reform legislation proposed and the corresponding efforts put forth to secure its enactment, all attempts have been more or less successfully defeated. In some cases established reforms have been swept away. For example, speaking as a Kansan, our sister State, Missouri, has deprived the Board of Pharmacy of the right to employ special attorneys in the prosecution of the Pharmacy Law. This the Board considers a serious handicap. It constitutes but one of the instances of failure to improve pharmacy laws and to bring about more substantial reform through drug legislation.

Some new laws are worthy of notice:

Tennessee passed two measures creating pharmacists out of unqualified men. In one case, physicians in towns under 2000 population are given registration privileges, and, as to apprentices and assistants in pharmacy, after five years of service, they become registered as pharmacists.

In Indiana a new enactment solves the problem of rural drug supply by prohibiting, under certain penalties, the sale of drugs within two miles of a drug store. In Ohio the anti-sampling bill prohibits the doorstep and yard sampling of alleged remedial agents. In Michigan the poison container must have stoppers with serrated edges.

The Committee on Drug Reform has during the year, just past, published an open letter to pharmacists of the United States in *The Druggists' Circular*, presenting the results of investigation, indicating possible reforms and soliciting coöperation, suggestions in regard to the work, and criticism. About two hundred and fifty reprints were also mailed to druggists and pharmacists. A number of responses were received in which interest and a spirit of helpfulness were manifest.

The Chairman of the Committee has felt that it was his prerogative to act independently in the matter, doing what he could in his own State to influence reform in drug legislation. To this end, he has written and sent broadcast over the State at different times during the winter three separate circulars setting forth especially the need of two reforms: first, that of controlling the practice of itinerant vendors, and secondly, that of preventing the objectionable practice of

dispensing physicians who do not avail themselves of the protection against adulteration. Unfortunately, the efforts which have been put forth in this direction have been apparently of little avail. The two bills which were introduced in the House of Representatives failed to carry. Yet we, in Kansas, by no means, confess defeat. We believe that when the people of the State at large clearly understand the issue they will be only too willing to support the legislation asked for.

Few reforms in the way of actual legislation have been secured anywhere. But the cause of reform has achieved progress in the precedents established by decisions of the National and State Courts. With these it would be impossible for the paper to deal in detail. Those who have followed developments through the journals know that they have come to constitute a very voluminous part of pharmaceutical literature. We are unfortunately able to refer to the far-reaching cases where an adverse decision has been secured by special interests to the effect that medicinal preparations may be labeled cures for any and every ailment although absolutely ineffective, without violating the Food and Drugs Act. The moral sentiment created by such a decision may in the end be productive of good. Already reaction has set in when Congress is asked to strengthen the Federal Act to cover such clear cases of misbranding—and Congress is asked to act promptly.

We need national, interstate, and intrastate drug reform. The necessity of better drug examination at ports of entry should be reiterated. One correspondent states in reply to circular letter: "Not all ports of drug entry are under inspection. While at those that are, their ultimate admission or rejection rests with inspectors who are not scientifically fitted to judge in the matter."

One correspondent, Dr. Schneider of California, and of this Committee, writes as follows:

"The drug situation on the Pacific Coast is not much changed. As reported to you on previous occasions, the percentage of adulteration of vegetable drugs, crude as well as powdered, runs close to 50. The Department of Agriculture seems to be unable thus far to change conditions very materially. The Pacific Coast is simply the dumping ground of the drug refuse of the United States. Of that I am convinced. The Eastern dealers simply give us the worst of the deal, dumping their comparatively worthless material here, feeling that they are less liable to get into trouble than if they should attempt to dispose of such material nearer at home."

He suggests that the difficulty might be met in part at least by

"limiting the importation of drugs into this country to three or four ports of entry, thus doing away with the expense of inspectors at a dozen or twenty different places, and by using the money thus saved to have three or four well equipped laboratories in the ports of entry selected. At all events, appointments for inspectorship should be for efficiency rather than for political consideration. Responsibility for the supervision of drug importation is now borne by different divisions of the Departments of the Treasury and Agriculture. By fixing responsibility on a single Department, the condemnation of undesirable drugs could be made more certain."

The regulation of the admission of substances used wholly for adulteration, such as ground olive pits and cocoanut shells, may, as ex-President Rusby sug-

gested, and we recommended last year indirectly, be made the means of checking drug adulteration within our own boundaries.

The question of uniformity of standards is worth our noting again. We do not favor the permission of the use of pharmacopœial titles when variation from standard is stated on the labels. The Federal regulation on this matter is entirely too loose, loopy and far-reaching. It will work an immense harm to pharmacy if it be allowed full sway.

We feel that most of the officials who have to do with the administration of the Federal law recognize that in this respect it is not good. Dr. Wiley has so expressed himself. We should like to see the Federal law brought into harmony with the idea of greater uniformity of official preparations, no deviations from them being permitted except, perhaps, in a very few especial cases.

Moreover, since we feel that this should be the goal of Federal legislation, State legislation should be looking forward toward the same end. If that end be reached the sooner in the State, it constitutes that much progress. There is nothing gained in modeling State upon National law, in the empty desire for uniformity when the National law itself is not a good one. Let the States prohibit sub-standard goods as completely as possible.

The lack of uniformity in guaranty provisions in the different States leaves the way open for wholesale abuse. In many States there is no arrangement for fixing the responsibility for the sale of adulterated or misbranded goods when the vendor can show the guaranty of a shipper living outside of the State. The section relating to guaranty provisions in the Michigan law might well be enacted verbatim by the other States of the Union:

"Provided, That no dealer shall be prosecuted under the provisions of this act when he can establish a guaranty in accordance with the provisions of the national food and drugs act, June 30, 1906, or a guaranty signed by the wholesaler, jobber, manufacturer or other parties residing in this state, from whom he purchased such article, to the effect that the same is not adulterated nor misbranded within the meaning of this act. Said guaranty to afford protection shall contain the name and address of the party or parties making the sale of such article to such dealer, and in such case, if guaranty was given in this state, said party or parties shall be amenable to the prosecutions, fines and other penalties which would attach in due course to the dealer under the provisions of this act."

This would relieve the State of Kansas, for example, of some present embarrassments.

A third reform needed in State legislation has to do with the labeling of physicians' prescriptions. This is required in a number of States. It is obviously an injustice to the physician to make known to his patient what has been prescribed. Cure may by this means be retarded, or a drug habit formed. The clause should be repealed in every State Food and Drugs Law in which it now stands.

A concerted effort on the part of pharmacists should be made to inhibit the exploitation of the drug business in the form of Nostrums—a barnacle still impeding pharmaceutical progress, and lowering its dignity. The organization of a company advertising its stock as a sure money getter and a grand opportunity for financial investment in nostrum manufacture is suggestive on the face of it of

a questionable interest in the quality of the drugs (and of their wonderful merits) for the handling of which the company is organized. The Committee suggests that these companies might be restrained by an amendment of the state pharmacy laws—the same laws which compel physicians and pharmacists to prove their qualification or by some kind of restriction as a matter of public safety against fraudulent claims of the nostrum makers and vendors, even though it require certain kind of restriction in the use of the U. S. mail.

In a large number of the States, particularly in the West, reform should be directed at the practices of dispensing physicians above referred to. Physicians are seldom competent to judge of the quality or purity of the drugs they handle; hence, if they dispense, they become easy marks for supply houses wishing to unload substandard and adulterated materials. The fact that a physician's stock of drugs is not subject to legal inspection serves to make him the more liable to imposition. Legislation should be secured in the various States obliging physicians who wish to dispense drugs to meet the present legal pharmaceutical requirements. We are glad to state that a large number of the best and most progressive physicians are with us in this matter.

An effort should be made to control itinerant venders more effectively. These house to house and door to door pedlars often carry a considerable supply of drugs in connection with toilet articles, notions, and proprietary medicines. Yet their stock is seldom subject to inspection largely because of inadequacy in the administration of the law. This state of affairs very naturally results in two standards—a strict one for the pharmacist who must dispense of a uniform quality, and a much more elastic one for the itinerant vendor who dispenses as he pleases. In order to control this traffic those who engage in it should be required to put themselves on the same plane as the registered pharmacist, and their wares should be submitted to inspection, such inspection being made as practical as that of drug stores.

One of the biggest propositions drug reformers are facing is that of getting rid of old stock on the shelves of drug stores all over the country. A lot of this material finds its way into prescriptions and other trade channels. The State Associations could perform no better service to their members and to the public than to institute private investigations and when such professional derelictions are found to warn the negligent and guilty druggist of their discoveries.

There is great need of reform in inspection of intrastate commerce in drugs. The lack of coördination between Federal and State authorities, and beween the various State authorities constitutes the weakest point in drug reform administration. Variations in legislative requirements tend to make the matter worse. We have already noted the loopholes offered by some of the guaranty clauses. Yet even with our present lack of uniformity of drug laws conditions could be much improved by coöperation between State and Federal laboratories and inspection.

This Committee wishes to reiterate its belief that the Association can further the work of law enforcement by the creation of a separate division of the scientific section to consist of all who are especially interested in analyses of drugs in connection with the administration of the different drug laws. It would meet

on a special day each year to determine and unify certain processes and standards and compare results. In short, it would constitute a clearing house for drug analysts. It seems to this Committee that our own Association is a more natural center for such work than the American Chemical Society in which there is at present a special section for drug analysts.

L. E. SAYRE, *Chairman;*
ALBERT SCHNEIDER,
E. V. HOWELL.

RESPONSIBILITIES OF THE PHARMACEUTICAL CANDIDATE.

PHILIP ASHER, PH. G.

The question of the hour is, who shall have jurisdiction over the coming pharmacist? The pharmaceutical press is teeming with editorials upon the subject; educators and others are expressing their views, hence the writer believes no unpardonable sin will be committed if at this time he add his mite. Some of the opinions expressed are diametrically opposite, and it is the writer's opinion that the desideratum might be reached by striking an average of all.

The theme has both radical and conservative partisans, the former contending that authority should be entirely vested in the Colleges of Pharmacy, while the latter hold that the Boards of Pharmacy alone should wield the supreme power. The radicals naturally are confined principally to those interested in the schools either as teachers or graduates, while the majority of the conservatives belong to the class who either did not have the opportunity of a college education or failed to take advantage of it when it was offered.

It is the intention of the writer to state facts and illustrate them with examples and if in doing so the personal pronoun be used too often the reasons are obvious.

All who have had experience with State Board applicants, too well recall how numerous were the times certain ones would try the examination, always meeting with the same fate-failure, until at last the required mark was made and they stood upon an equality in the eyes of the law with you, while you sat in amazement and wondered until constant repetition of the example no longer caused surprise.

In your own hearts do you consider such men competent to practice a calling where so much is at stake and would you entrust them with the compounding of remedies for your own dear ones?

Legislators claim that laws are not made for the benefit of any class but for the people, and how remiss are they when any measure for the relief of the above conditions come before them.

Would conditions be improved were a college course exacted? That depends upon circumstances. The graduate with only his college training is not much better than he who has failed so often; but this when conjoined with the necessary amount of experience makes the ideal condition.

The writer recalls the case of a medal student, who after graduation was employed in a manufacturing laboratory and while his theoretical knowledge at

the beginning of such a career was up to the top notch, he was wholly at sea with his surroundings and lacked that essential that a college training cannot supply, and which is acquired only by hard knocks—practicability. A year after graduation he went before the State Board and though he passed successfully, his answers disclosed anything but a college trained mind. The seeming brightness at college was actuated by a possible reward, but had he had experience before entering college the knowledge acquired would have been more deeply rooted and would not have been forgotten so readily. The above conditions represent the extremes; what would the happy medium be?

The candidate for registration should possess two necessary requirements, a practical experience of two years and a college course.

Each Board of Pharmacy should have complete supervision of the apprentice from the time he makes application for such papers until he is registered, thus making the board the court of first and last resort.

When the apprentice first enters upon his career he should be fully informed as to all conditions that will be imposed upon him. At the end of two years he may enter a school of pharmacy, but his fitness to do so should be determined by the board not through certificates or diplomas, but by an examination, and no permission to enter a school shoould be given until the board is fully satisfied. (The limitations of such fitness will be discussed later.) This is the first obstacle he encounters, and after several trials, if found wanting at this stage, would it not be better to discourage him from continuing, rather than meet with failure higher up the line? The time he has already lost amounts to nothing and you would be doing both him and humanity an act of kindness by such procedure, and would rid the calling of the undesirable element with which it is so badly burdened. To advance into a higher class an examination should be passed and another before graduation, and the final gateway is his examination before the board to entitle him to the Registered Pharmacist's Certificate. Thus it is seen that constant study is necessary to reach the goal and if deficient at any step may result in a final failure.

Are the conditions as outlined impossible of realization? What method must be pursued to bring them into effect? Neither the radical nor conservative method alone will be of any avail; the middle of the road policy must be adopted and every phase of this momentous question must be fully considered.

The educational prerequisite is perhaps the feature over which there is a greater difference than any other. Here again the educator is wont to go to extreme measures and attempt to enforce a condition so high as to make it nigh prohibitive. Certificates and diplomas cannot always be depended upon as a measure of qualification, the lack of which should not be an absolute bar to one's entering a college —and common sense should sit in the judgment seat. We once had a student who had graduated from a Southern college near the Ohio, possessing a B. S. degree, who had never heard of the term bacteria and while apparently versed in Latin and Greek, was unable to perform problems under Ratio and Proportion. Another illustration bearing upon the same point was a case of a young man applying for a position in a manufacturing laboratory, and upon interrogation stated he had finished mathematics and had passed an examination at a preparatory school to enter the University. It was not very long after that his

knowledge of such subjects was shown to be very meagre and he was unable to perform examples under simple fractions. It was true he had studied as he had claimed, but it was a case of cram and not with an intent of reason. He was taken in hand and given a thorough drill, pursued a course in Pharmacy, standing highest in his class, and after further tutoring to make the counts required by the University, entered it as a medical student and has since become a successful physician.

Allusion was made above to the fact that we cannot be guided only by a certificate. Many a worthy lad would be turned down if we adhered strictly to such ruling. A few years ago I was called upon by a young man desirous of studying Pharmacy, who stated he feared the examinations as he had been placed upon his own resources at the age of ten, and until entering the drug business several years before had led practically a nomadic existence.

I became very much interested and after learning all I could decided to shoulder the responsibility of admitting him without an examination. My judgment was not wrong, for he soon proved that the knocks he had received had made him self-reliant, and he not only mastered the studies, but he possessed that keenness of forethought that he saw and understood things before they were fully explained, and as may be imagined his standing was far above the average.

Two years ago several belonging to the class of "repeaters" passed the Louisiana Board of Pharmacy. One of these came to the private school of the writer (before the existence of the N. O. C. P.) after having already failed several times to pass the Board. He paid his fee in advance and took one or at most two lessons. It subsequently developed that the nights that his employer permitted him to attend he spent in other ways than "burning the midnight oil," and twelve years after he finally succeeded in squeezing through.

Objection has been raised to a prerequisite college course on the ground that it would deprive the poor boy of an opportunity of attending college. This poor boy proposition has done service so long that it has "died from over fatigue." The legislative committee of the Louisiana State Pharmaceutical Association, when they appeared before the Committee on Health and Quarantine who had this measure before them, presented some eighty or more affidavits showing the possibility of young men attending college while employed. The committee made a favorable report and the bill passed both houses only to receive a pocket veto for political reasons and not upon merit.

I can recall many cases of the basest ingratitude shown by some poor boys towards their employers, some beyond belief. Charity is a trait worthy of emulation, but it is too often misplaced. I do most emphatically claim without fear of contradiction that any young man can attend a college if he is possessed of a determination to succeed. The principal reason more do not attend is that they have been advised by those not having had a college education that such is unnecessary, and naturally without the incentive the effort is never made. A "repeater" upon being approached to take a course in the private school of the writer stated he did not need any instruction and could pass without it. Eight years later, after all manner of excuses why I could not coach him were offered and failed, I finally yielded and during this period only a few lessons were given for which he paid nearly as much as two sessions of college would have cost

today and more than what was charged during my time. As may be imagined, such desultory methods proved valueless and he failed at the next examination but succeeded at a later one. Do not these examples forcibly illustrate the fallacy of expense? Do not some of these young men pay more before they finally pass than a course at college? Some may ask, "How can this be?" Consider one side of this subject alone. What has been the monetary loss of the repeater compared to the young man who has gone to college? Calculate the difference in the pay between the registered pharmacist and the unregistred, and it will only take a short time to pay for the college course as against the many years it takes the repeater to pass.

Is not the more sound education worthy of consideration? Can any one cite a single instance where an education as suggested has any drawbacks? Then as men following a calling quasi-professional in nature we should demand such restrictions. An editorial in one of the recent pharmaceutical journals quoting a college professor is beyond reason. The professor opposes prerequisite education on pure sentiment, stating that if a student failed to pass his college examinations it would deter him from becoming a registered pharmacist and that was a responsibility he did not care to assume. Especially when the failed ones would appeal to him for sympathy. This is a fine state of affairs if men of education take this view. Sentiment in matters as vital as this is as bad as politics. Did it ever occur to this teacher that a student's failure to pass is largely his own fault, not on account of stupidity but lack of study? The failures at college would be indeed few if the student knew that it was compulsory to have a diploma in order to pass the board; and if the avenue to which the professor referred were still open to the student who failed, there would be but few applicants.

In this paper generalities have been avoided almost entirely. No attempt has been made to paint impossible conditions; the illustrations are facts not romances, nor have exceptional cases been cited and while only one or two instances were brought forward under each of the several cases, examples could be given almost without number. An experience of nearly thirty years in the various paths of pharmacy must certainly carry with it some weight in an opinion upon this subject, and the stand taken by the writer and the views expressed are the result of a thorough study of every phase mentioned.

THE STAB IN THE DARK.

"A man may lead a life of honesty and purity, battling bravely for all he holds dearest, so firm and sure of the rightness of his life that he never thinks for an instant of the diabolic ingenuity that makes evil and evil report where naught but good really exists. A few words lightly spoken by the tongue of slander, a significant expression of the eyes, a cruel shrug of the shoulders, with a pursing of the lips—and then, friendly hands grow cold, the accustomed smile is displaced by a sneer, and one stands alone and aloof with a dazed feeling of wonder at the vague, intangible something that has caused it all."—*William George Jordan.*

Section on Practical Pharmacy and Dispensing

Papers Presented at the Fifty-Ninth Convention

NOTES ON SOME PHARMACEUTICAL PREPARATIONS.

P. HENRY UTECH, PH. G.

For many years past we have kept a record of hints and suggestions for the improvement, or expediency in manipulation of, the various pharmaceutical processes or operations, which have come under our observation, and I take pleasure in presenting to you at this time some of the data which, in our experience, have proven to give excellent results.

It is not claimed that these devices are all original, but were simply obtained from authentic sources, tested, tried, and not found wanting. I will first call your attention to a few points—simple but very essential—in the making of U. S. P. syrups. We formerly had considerable trouble in making satisfactory syrups, both simple and medicated, until we began using the brand of sugar known as "Crystal A" Confectioner's Sugar. This particular brand seems to be entirely free from the bluish coloring principle. The water, too, must be distilled, not sterilized, if you expect to make a perfect product.

We also experienced some difficulty in maintaining a satisfactory syrup of Wild Cherry. Inasmuch as the influence of light exercises a very detrimental influence on the keeping quality and remedial value of this syrup, we have found it quite advantageous to keep the stock syrup in an amber-colored glass container. Some authorities claim that the aromatic principle is entirely dissipated in a few months upon exposure to direct light. Incidentally I might mention that such clinical authorities as Wood, Sollman, Wilcox and others are convinced that this preparation is used chiefly for a flavor and contains little, if any, therapeutic property.

The Compound Syrup Hypophosphites formerly gave us some difficulty in making a permanently clear product owing to the presence of a basic calcium salt. The addition of a small quantity of Hypophosphorous Acid seemed to remedy the trouble.

An Elixir Terpin Hydrate containing double the amount of the Terpin Hydrate can be prepared by the addition of a small quantity of Acetic Acid. The formula we now use is as follows:

Terpin Hydrate (in powder)	256 Gr.
Acetic Acid	80 Min.
Tinct. Sweet Orange Peel	2 Fl. Dr.
Alcohol	8 Fl. Oz.
Glycerin	4 Fl. Oz.
Elixir Aromatic, sufficient to make	16 Fl. Oz.

Dissolve the Terpin Hydrate by the aid of a gentle heat in the alcohol, to which the Acetic Acid has previously been added. Then add the tincture sweet orange peel, glycerin, and lastly, elixir sufficient to make 16 fluid ounces.

Most formulas suggested by other experimenters seem to be heavily charged with glycerin in place of the alcohol, in many instances, making the preparation eligible to the class of Glycerites. Many also suggest the use of Saccharin as a sweetening agent, which has recently been tabooed by the Pure Food and Drug authorities.

We also make Elixir Aromatic by using only one-half the quantity of syrup and water called for, in the first part of the operation, mixing with the spirit of orange, and alcohol, and filtering until a clear solution is obtained. By this operation there is an economy of several hours' time.

When dispensing the U. S. P. Infusion Digitalis, the physician expects to get a preparation which represents the entire diuretic property of the drug. For this reason we have always employed the well known English brand of the drug. Although costing more than double the price of the American grown drug there is no comparison in the quality of the finished preparation.

This idea of economy is of altogether too frequent occurrence among our pharmacists. Many of the newer U. S. P. and N. F. formulas have incorporated in their text numerous volatile or aromatic substances—in some instances as adjuvant—in others because of some therapeutic value. It is possible that in many instances their object is entirely defeated through the dispensing of an inferior product. Take the case of the Liquor Antisepticus, Tinct. Lavend. Comp., etc., as examples, the medical properties of which depend entirely upon the volatile oils. Many of our more progressive wholesale drug firms now attach a label showing the physical constants of each oil, thereby ensuring uniformity and accuracy in the finished preparations in which they are employed.

We prepare many of the aromatic medicated waters, by simple agitation of the oil with hot water, allowing same to stand for several days or weeks as the case may be. The product is then poured upon a wet filter, which retains the excess of oil, and the preparation is then ready for use.

For more than ten years we have used the circulatory displacement method in preparing Tincture Iodine with most happy results. The U. S. P. 1890 formula calls for Potassium Iodide in addition, which is not immediately dissolved. We use about 90 per cent. of the alcohol at first, place the mixed chemicals in a muslin bag, suspend for one-half hour in the liquid. After that we take any excess of potassium salt out of the bag, add to the tincture thus prepared, and finally wash the bag with the remainder of the alcohol.

In making up emulsions of fixed oils, such as Castor, Almond, Cotton Seed, etc., the addition of powdered Castile Soap—about 1 gramme to each 30 cc. of oil—makes a most excellent emulsifying agent. In the case of Castor Oil emulsion, the soap likewise increases the aperient action of the oil. The soap may also be used in preparing emulsions of Balsam Copaiba by increasing the amount with very satisfactory results. Emulsions of this character, however, are not as permanent as those made with Gum Arabic.

INFUSION OF DIGITALIS U. S. P.

CHAS. M. FORD, PH. G.

The following report is taken from the files of the Food and Drug Department of the State of Colorado, and was submitted by this writer in his official capacity as State Drug Inspector:

"The question of how the physiologic test upon a package of digitalis shall be regarded by the retail druggist has been brought to the attention of this office.

"Inasmuch as there is no official, chemical or physiologic standard for the drug, a strict construction of the law of this State requires that all official preparations be made according to the proportions laid down in the United States Pharmacopœia.

"In all probability, the next revision of the Pharmacopœia will contain physiologic tests for such potent drugs as cannot be valued chemically. It would therefore seem fair for the conscientious pharmacist to anticipate the action of the Committee on Revision and dispense such important a remedy as infusion Digitalis with a careful regard for toxicity and therapeutic powers as shown by trustworthy physiologic assays.

"A visit to a number of Denver stores shows that a principal source of supply for digitalis leaf is one British firm, who now place upon each container the strength of the drug, as compared with an arbitrary standard of their own. The reputation of the firm throughout the world merits for their standard and similar declarations the careful consideration of pharmacists and physicians."

Every pharmacist recognizes the necessity for standardization and rubrics of purity, especially for plant drugs. It is a well known fact that we have no chemical or physiological test for determining the toxic or therapeutic potency of some of our most important plant drugs, including digitalis and the U. S. P., is silent as to physiological tests.

The main object of a legalized authority, such as the U. S. P. and N. F. is to secure uniformity in the strength and character of official substances and preparations. Now in the case of digitalis, known to have a wide range of variation, in medicinal value, how is this uniformity to be secured? Obviously, not by adhering to the fixed proportion given for preparing infusion digitalis. Or will someone contend that the physician must observe this varying strength of an official preparation, at the bedside and regulate the dose accordingly?

Technically speaking, any deviation from official formulas is violation of law in the State of Colorado, but in the case of infusion digitalis, in the writer's opinion, a rigid compliance with the letter of the law is a flagrant violation of its spirit and purpose, and should not be countenanced in any well regulated pharmacy.

INFUSION OF DIGITALIS.

J. LEON LASCOFF.

For many years past pharmaceutical journals have given much room to the discussion of the subject of digitalis. Still, little or nothing has been mentioned about the infusion of this most important drug. Of all the infusions, that have

been prescribed and have not lost their use in therapeutics, digitalis is one of the most important, and yet it is the one, in spite of its great importance, to be abused the most.

Let us consider what the physician intends when prescribing this infusion. His object is to give the patient a preparation of digitalis that shall not contain all of the principles found in the powder, the tincture, and the fluidextract. He wants only those soluble in water. In order to bring this about, it is the duty of the pharmacist to manufacture an infusion and bear certain important facts in mind in doing so.

1. The quality of digitalis.

2. Method of preparation, utensils and time necessary.

(1) In selecting the leaves always purchase the one which costs the most, which bears the guarantee label and date of selection. Whether the leaves should be the first or second year's crop, wild growth or cultivated, are not to be considered in this paper, as the question is not yet definitely decided upon by authorities; but I have found through personal experience that the leaves purchased from Allen & Co. bearing the certificate label of purity and date, are the best for the manufacture of infusions; and I have come to this conclusion as the result of experiment by purchasing four different qualities of leaves at prices ranging from 50 to 85 cents per pound.

It may seem to be unethical to mention the aforesaid name of firm; still I am of opinion that such should not bear criticism in this case, as we are dealing with a drug, the action of which may influence the life of an individual, and as the firm actually guarantees its purity and selection and date, and as no other concern does so, I don't hesitate to recommend Fol. Digitalis Allen. If I am authentically informed that this is not the case I will gladly strike out the name.

(2) Just as important as is the quality of the leaves, so is the method of manufacture. One must always follow out the instructions of the U. S. P. and so pay strict attention to the utensils used and to the time occupied in making the infusion. Only porcelain or glass dishes should be employed; no metal or enameled dishes should be used for obvious reasons. After the preparation has been allowed to remain standing for one hour, well covered, the remaining leaves should be placed in cheesecloth and squeezed through in order to get out all possible strength, and then the entire liquid properly filtered. Although the U. S. P. requires the addition of alcohol, I think it could be just as well omitted if only for the reason that the pharmacist would not be tempted to make up a stock solution. Physicians frequently prescribe also Infusion digitalis, different strength, mentioning the quality of the leaves, and in such case alcohol should not be used.

I want at present to take the opportunity to criticise the contemptible habit of some pharmacists who make the infusion from fluidextract. It is true, that every drop of the extract represents one grain of the drug, but the fluidextract is made with alcohol and represents all the constituents of the original drug, just exactly what the physician does not want in his infusion. The therapeutic effects are entirely different than that intended by the prescriber. You are therefore doing

an injustice to the physician, patient and yourself. *Whatever is worth doing is worth doing well.*

And this most certainly applies in this case in which human safety is at stake. As an illustration of my remarks regarding the various qualities, grade and price of digitalis leaves on the market, I had examined by a physiological chemist, four specimens of the different grades and prices, with the result as follows:

	M. L. D.	Strength	Cost
(1)	12.3 Cc.	54%	.55 per pound
(2)	10.0 Cc.	67%	.65 per pound
(3)	10.0 Cc.	67%	.70 per pound
(4)	8.3 Cc.	80%	.85 per pound

which means that in Specimen 1, the poorest grade, it required 12.3 cc. of the infusion to kill a normal weight Guinea pig, and that the total percentage of drug strength compared to the tincture was 54 per cent.

Four, the best grade, required only 8.3 cc. of the infusion to kill the same size pig with the total per cent. of 80.

We see then that No. 1 is the weakest and cost the least, and No. 4 the strongest and cost the most, and yet the cost for 250 cc. is so trivial that it must be computed by fractions of 1 per cent. For example:

	lb	30.0	7.5	To make 250.0 Cc.
(1)	55c	0.034	0.0085	
	lb	30.0	7.5	
(2)	85c	0.053	0.0133	

The difference of price of 250 cc. bottle of infusion is just 0.0048, or approximately one-half cent. If the saving is sufficient to cause the pharmacist to employ the inferior grade in preference to the more costly one, then it is time for him to close his establishment.

DISCUSSION.

MR. VANDERKLEED called attention to the fact that in making the infusion it was not possible to avoid getting some of the heart stimulating principles in it, but that these would not be present to the same extent in an aqueous infusion as in an alcoholic tincture, consequently it was possible for the physician to vary the effect by specifying the infusion in one case and the tincture in another.

MR. HOWELL did not accept the statement that infusion of digitalis has only a diuretic effect. In the making of a number of experiments on dogs and frogs it was necessary to deduct the effect of the alcohol in order to compare the infusion with the tincture.

Infusion of digitalis is decidedly more strong in its heart action than it is thought to be by some people.

MR. WILBERT hoped that the dangerous and misleading impression would not be created that the quality of digitalis depended entirely upon the price paid for the drug. The question of price has little or nothing to do with quality. The question of digitalis is an extremely complicated one and not to be solved offhand.

He stated that the Bulletins on Digitalis issued by the Hygienic Laboratory would justify different conclusions than those presented in the papers read. He hoped Mr. Lascoff would

eliminate therapeutic reference in his paper lest it be construed by medical men as an assumption on the part of pharmacists to say something about which they know little or nothing.

MR. GROFF stated that the earlier physicians who used digitalis employed only the leaves after they had been deprived of midribs and large veins. He thought it possible that such a drug would be more uniform in action than the whole leaves.

With regard to the use of therapeutic references, he thought that these should be given in colleges of pharmacy in the lectures on physiology, and that the lecturer should be a physician.

MR. RAUBENHEIMER said that the present U. S. P. does not state that the infusion must be freshly prepared, as it undoubtedly should. Many pharmacists seem to think that the addition of alcohol in the present formula gives them the right to keep the infusion on hands and dispense as wanted. The Pharmacopœia should definitely state that the infusion must be freshly prepared. He did not agree with Professor Lascoff as to the squeezing of digitalis leaves and filtering the infusion. Adding water through the leaves takes out practically all of the soluble principles.

MR. DUNNING preferred to make the infusion by pouring boiling water through the leaves, and after standing an hour pour through a funnel containing cotton, following with sufficient water through the leaves and cotton to make the required quantity, after the alcohol has been added.

In response to a question by Mr. Alpers as to the reason for the alcohol in the present formula, Mr. Hynson thought that it was to aid in keeping the infusion until used by the patient.

MR. WILBERT said it was the remnant of the practice in which brandy was added to make the preparation more palatable, and that this had been misconstrued into a preservative.

MR. LASCOFF stated with reference to the diuretic action of the drug that he had communicated with at least twenty physicians, and that they had endorsed the statement made.

MR. ALPERS stated that if it was true that the object in prescribing the infusion was to reduce the heart action as much as possible then the alcohol was acting as an antidote to the drug. If the statements made to the Section were based on fact, the attention of the Revision Committee should be called to the subject before the formula is placed in the next Pharmacopœia.

PROF. J. P. REMINGTON said that we do not know certainly to what digitalis owes its peculiar virtues and until we have a good method of assaying and determining the value of the drug there would be discordant results. If the pharmacist is sure he has obtained a good quality of digitalis does not give it a chance to deteriorate, and makes the infusion freshly and in small quantities, he has done the best he can do under the circumstances.

The conditions which contribute to the deterioration of digitalis are not known exactly. He did not have faith in the putting of digitalis in blue bottles, but preferred a non-transparent container, as a tin can, with a lid not too tight. Frequently leaves are injured by keeping in a tight container which does not permit the evaporation of natural moisture. Until it is known with certainty what the active principles of digitalis are, and their nature, the pharmacist cannot intelligently make its preparations. The best that can be done under the circumstances is to make a preparation which shall contain all of the active principles. He thought that physicians did not generally make any differentiation between the use of digitalis for heart action and for diuretic action. He believed that there are too many alcoholic preparations used and that the use of a greater number of infusions made directly from the drug would be an improvement over the present practice.

Referring to the idea that the value of a drug necessarily indicated its quality, he said that this was not necessarily true. Prof. Kraemer had found that the dark and wormy portion of rhubarb ,commonly required to be rejected, is in some cases the most valuable.

Another important question in pharmacopœial work was, how much of the stems of vegetable drugs should be included? The collector of drugs sought to include as much as possible of adherent and extraneous matter, and the importer naturally sought to pass this material on to his customers. In the next revision of the Pharmacopœia it would be endeavored to limit

as much as possible inert portions. In reply to a question as to the reason why the Revision Committee included alcohol in the infusion, he stated that it was for its preservative properties.

MR. HYNSON moved that the papers be referred to the Publication Committee with the understanding that the authors should eliminate all therapeutic references, which motion was seconded by Mr. Wilbert.

MR. FORD referred to the large use of digitalis in Colorado on account of the high latitude and pulmonary troubles. A drug could not be discussed even commercially without therapeutic references. It was desired to give the physician what he expected to get and as digitalis was a drug whose constituents were not well understood, it should be endeavored to give a uniform infusion from the best drug obtainable. He had never been guilty of putting alcohol in the infusion, and had always considered it one of the jokes of the Pharmacopœia.

DR. J. M. GOOD did not see exactly how the authors could be required to eliminate all therapeutic references. He thought the preparation of a drug so as to develop one or another particular therapeutic quality was a very important part of its pharmacy and was properly included in the discussion of such drugs and their preparations.

MR. HOWELL stated that he was prepared to defend his use of therapeutic terms if challenged. The experimental work referred to had been performed in his department and results had been published and read before the American Medical Association.

MR. VANDERKLEED did not think it necessary to eliminate all therapeutic terms, but if Mr. Lascoff would eliminate the statement that physicians wanted to leave out all heart stimulating properties it would be sufficient. Physicians certainly do prescribe the infusion for its diuretic action.

The amendment was accepted and the amended motion was unanimously carried.

MR. HYNSON moved that it be the sense of the Section that pharmacists should be warned against the use of any except infusion of digitalis freshly made, in strict accordance with the Pharmacopœia.

After some discussion, the motion was put to a vote and carried.

ANOTHER VIEW OF PARCELS-POST.

About the only associations now opposed to a parcels-post are those of druggists, while a great many organizations, including the Manufacturing Perfumers' Association, are urging the adoption of the idea. Residents of England, Germany and other foreign countries now have the *privilege of using our mails in this way*, by international agreement, and the equal right to enjoy this service should no longer be denied to the American citizens and taxpayers who "pay the freight" in the form of taxes. All of the arguments against a parcels-post have been exploded by the experience of countries where the system is in operation. President Taft, ex-President Roosevelt, the Postmaster General and leading publicists, as well as prominent business men, all are advocates of the idea, and the only difficulty in Congress seems to be rather one of ways and means than of disapproval of the plan as an economic and desirable feature of our postal service.

With a parcels-post there is no danger of the small dealers being crushed under the "steam roller," unless they are business derelicts waiting for some excuse to get out of trade. It has not happened in other countries and it will not happen here. In fact, the small dealers in the small towns will enjoy more advantages than at present under a parcels-post system.—*The American Perfumer.*

Section on Commercial Interests

Papers Presented at the Fifty-Ninth Convention

THE PROPRIETOR'S SALARY.

W. BRUCE PHILIP.

The young man starting in business as well as many older men who have been long established would not know how to answer if asked, "What is your salary?"

"All that is left over," "all that I spend out of the cash drawer," or "all that I need to live on," might be some of many answers. If business is good, the boss helps himself liberally with money from the sales, and, if trade is dull, stints himself or reduces stock as long as it will stand it.

Profit is made by selling goods for enough to pay all expenses and have something left over.

In order to be successful one must know all expenses exactly, not approximately. In large corporations each man engaged is paid a salary and this is figured in as part of the fixed expenses, but the one man store or the one employing one, two or even several clerks, is very apt to be very lax at placing his services at a stated value.

The young man starting says he can live for a short time on a small salary, say $60 per month, and figures accordingly. He starts and sales are made, bills are not yet due and he uses what he needs, maybe ten, twenty or thirty dollars more than first figured and next month the same until he finds himself alternately living well and then cramping himself to get along.

The drug business is composed of so many thousands of items that the ratio of the amount bought to the amount sold in any month or few months is often deceiving as to the profit or condition of affairs. The nearer fixed the sum total of expense is the easier the manager and buyer will find it to run his store and regulate his buying. One of the largest items of expense is salary and this in all cases should include his own services at a specified amount. A man must forget he owns the store and imagine he is the manager at a stated salary, such salary to be increased only by his own efforts and worth.

Except in the beginning or in rare cases, the manager (owner), is entitled to as much or more, as salary, than the best clerk working in a store similarly situated. Enough to give himself and family good food, respectable clothes and reasonable recreation. If one can not pay that, the honor of the name over the door is an empty one and the sooner it is changed the better. Let him pay himself a specified sum at stated intervals, increasing it only as he puts more energy, more shrewdness or worth into his work. Then run his store to pay a dividend on his investment and accept what is left over as such.

If one pays himself a salary that is more than enough to live on and it is not

too large considering clerks' salary in the neighborhood, what he saves out of his salary is a personal saving but not drug store profit. After drawing his salary regularly for some time he finds he has all bills paid, has not reduced his stock and still finds a surplus, then he has what I call real profit.

One of the important things is to always know where you stand. To know things as they really are. And the more definite all steps are taken the easier mistakes are found out and rectified—before they become of such magnitude as not to be controlled.

The drug store has many sides and offers many questions. Many items are peculiar to certain stores, but expense of running business is connected with all, and the boss's salary is of vital interest to each one of us. "How much am I really worth?" "Am I getting it?" "What per cent. is my real profit?" are questions not to be passed over lightly but to be answered carefully and honestly.

SOME ADVANTAGES OF MAINTAINING A LUNCH ROOM FOR EMPLOYEES OF PHARMACEUTICAL MANUFACTURING ESTABLISHMENTS.

W. A. PEARSON.

Your chairman has requested me to state some of the advantages of maintaining a lunch room for employees of pharmaceutical manufacturing establishments. I doubt if I am well qualified to discuss this subject, as I have only had a limited and somewhat distant relation with one.

This lunch room was started by the Smith, Kline and French Company for the benefit of their employees, and in its present condition is a development from the rather crude beginning of eleven years ago. It was intended primarily to provide a place where their employees could obtain a warm substantial lunch and a suitable place in which to eat, in an undesirable neighborhood. Unfortunately, laboratories must be located where good railroad service is available and this condition is not often found in the best neighborhoods.

An expert chef was engaged and began serving lunches to about sixty employees six days each week. Beef stew or sandwiches, of different kinds, with bread and butter, with a choice of either coffee, tea or milk was provided. Those employees who patronized the lunch room were charged fifty cents each week.

Those who preferred to bring their own lunch were required to eat it in the lunch room but at separate tables, consequently a few of the men obtained the popular buffet lunch in nearby saloons. This practice was demoralizing as well as leaving the "consumer" in a condition not conducive to exerting his maximum efficiency. Later it was made compulsory for all laboratory employees to take lunch in the lunch room and the most satisfactory results have followed. On Saturday sandwiches with choice of either coffee or tea were served at 12:30, but so few patronized the Saturday lunch that it was decided to carry sandwiches around the building at about 10:00 a. m., dispensing them to those who desired them at that time. This was afterward changed, and the money which had been

used for six lunches was used to provide for five and these then were made slightly better.

The food is always well cooked, clean, and wholesome and of sufficient quantity to satisfy those who do the hardest manual labor, although it is necessarily plain and not served with Parisian nicety and with exquisite musical selections.

Each table is numbered and bears a menu of the main dish for the following day. Each one seated at the table states his preference for the next day. The next day the waiters give to that table just what has been ordered for it. The orders are placed on the end of the table a minute or two before the employees enter the lunch room and thus they save time and waiter service. By thus voting the previous day the chef is enabled to buy supplies to better advantage; having the list to guide him he does not buy excessive amounts of one thing and too little of another. In this way we have been enabled to practice economy and yet serve a quantity of dishes with a surprisingly small waste. A choice of three kinds of meat or nutritious soups is offered and an abundance of potatoes, bread and butter provided together with a cup of coffee, tea or milk. Desserts are charged a minimum amount extra and those who desire may obtain pie, ice cream, or other dessert; usually but one kind of dessert is provided each day.

The actual monetary cost of providing this lunch is not entirely met by the amount charged the employees; that is 10 cents a meal, although an attempt is made to keep the expense as near this amount as is possible, and were it not for the ability of the chef to prevent to a very large measure the waste, the expense to the corporation would be much greater, or the quality of the food would be poor. However, if the gas, heat, rent, flour and sugar were taken into account there would be a small deficit. Moreover, the porters about the laboratory serve the dinners and do not pay for their own. The chef has three assistants in the kitchen to prepare the food, dish it and wash dishes.

The main lunch room, 30 x 50 feet, is painted white, contains twelve long tables and each employee is assigned a seat. The well appointed kitchen, 15 x 40 feet, contains two four-foot gas ranges, a 20-gallon steam kettle, large plate warmer, mechanical potato peeler, dish washer, vegetable steamer, coffee and tea urns. A large skylight supplies an abundance of light, and a reading, smoking and game room adjoins the kitchen where many employees profitably and pleasantly spend a few minutes after lunch before returning to their tasks.

The number of employees has now increased to nearly three times that of the early days of the lunch room, but the lunch is now served better and a greater variety given than formerly, because by the addition of the above facilities the same amount of help can do such kitchen work as required in a shorter time and spend the time thus saved on preparation of food and service.

Conducting a lunch room for employees has many obvious advantages, a few of which may be mentioned:

First. It provides wholesome food for employees so that greater efficiency may be expected and obtained.

Second. It eliminates the abuse and accompanying undesirable effects of the "free lunch counter."

Third. One-half hour is sufficient for obtaining lunch in the building.

Fourth. No time is lost by employees before or after the time for lunch caused by change of dress, adjusting hats, etc.

Fifth. Better moral influence than if allowed to go into undesirable neighborhood.

Sixth. It eliminates the necessity and inconvenience of carrying cold lunches and of going out in disagreeable weather.

I desire to express my indebtedness to W. G. McHenry, superintendent of this laboratory, for much of the data here presented.

THE PRACTICAL PHARMACIST.

L. HALE.

There exists many opinions as to what constitutes the practical pharmacist, each individual opinion to a great extent formed by the channel of thought and endeavor of the respective pharmacist.

The idea that a man can spend four or five years selling various drug store goods from soda water, cigars, shoe polish, and patent medicines and claim the right to be a pharmacist is past. There must have been a certain amount of research and study before anyone can claim such a title. For a number of years there has existed two distinct forces representing the ultra opinions as to the ultimate position the pharmacist is to occupy. Each is vigorously endeavoring to master the situation and each having a few splendid examples of success to confirm the soundness of their contentions, but not practical for the average pharmacist for in each instance these successful examples have been to a great extent creatures of environment and would be wholly impracticable for the great army of pharmacists over our country.

On the one hand we find so-called drug stores that are really department stores with the drug department one of the smallest and most insignificant features. Such stores can exist only in congested centers of population and it is exceedingly rare that they ever attain any great degree of success in what must always be the chief aim of the properly conducted pharmacy—the filling of prescriptions. As an illustration of the success of such stores in this line I will remind you of the fact that one of the largest stores of this type in the United States fills on an average only 100 prescriptions a day.

Against this is arrayed that which would immediately strip pharmacy of all commercial features and transform her into a full fledged profession. However desirable this may be we are not ready for it yet and it is impracticable at this date.

In my opinion for many years to come the most practical pharmacists will be those who correctly blend the professional and mercantile into a happy union. The pharmacist must be both a professional man and a merchant. As a profession I believe that our recognized schools teach all the age demands. I further believe that all pharmacists would be the better by having taken the course of study they prescribe and that the demand for this is constantly increasing each year. The

idea that the manufacturers make and supply everything and that all the druggist has to do is to pour from one bottle into another is an old one and grows less true with each advancing step of pharmacy.

One of the most important and practical lessons we should learn is that it is our business to fill prescriptions and not write them. At the same time we should be able to tell old time customer and friend the correct amount of iodide of potash to put into a quart of rain water to cure rheumatism. Neither should we refuse to inform our other good friend the correct amount of quinine to put into a quart of whiskey for a bad case of malaria; we should also inform him of the nature of the remedy for and the frightful results that might follow an overdose. In other words there is certain information the public expects the pharmacist to supply and it is impracticable and poor business not to do so. Much of this can be given in such a manner as to show him the wisdom of consulting a physician and at the same time increase his customer's confidence in himself. Certainly nothing is more helpful than public confidence.

As to the learning of the commercial side of pharmacy, there is a part to this that can only be obtained by actual experience and is within itself a constant study and subjected to the same changes and advancements as are the most profound and advanced professional thoughts. I regard the recent addition of a commercial section in our colleges as a step in the right direction. In fact I trust it will not be long before they have in connection with their laboratories a well equipped pharmacy in which all the every day details of the business are shown.

The public expects the pharmacist to be able to tell all about the goods he handles. A man may buy a cheap hairbrush from a department store and in doing so he simply pays the price asked and is gone. Not so with him in the drug store—he wants to know all the details connected with its making and why this one should be higher than that when they look so much alike. The druggist is expected and should know. Now what is true of this one item is true of the many. The more he knows about his goods the better he is prepared to meet the present day opportunities of the present day pharmacist. This may not do in a hundred years from now but it is the practical course for this practical day.

A NEGLECTED ASSET.

JOHN J. BRIDGEMAN, PHAR. D.

Every man, whether scientific, professional or engaged in mercantile pursuits, must command a certain amount of what is ordinarily known as "business sense" and therefore have his attention attracted by the word asset, since it means to him something which he possesses or something to be reckoned with in the striking of a balance, or the determining of what one is worth. Now there is an asset which we all possess but which I am sorry to say is sorely neglected by the members of our honored profession, or seldom credited by us, to the full value—namely, the asset of mental and physical health. I have been asked by the Chairman of this Section to treat of this asset and to point out how it actually affects the earning capacity of men. You are all familiar with the expression so often heard, "A sound body begets a sound mind," and I venture to say that there is scarcely any one present who has not repeated it and then took to cover for fear

the one to whom it was addressed might say, as is so often done in the case of our hair tonics, "Why don't you try it on yourself?" The difference in this case being, however, that the former really will work.

Given a mind then let us consider its relation to the body and vice versa. We know from our physiology that the mind to some extent at least, is affected by the functions of the body, and that the reverse is also true, therefore since these two parts of our being are so inseparable, it behooves us to see that the shortcomings of the one are immediately taken cognizance of in order that they may not affect the functions of the other.

I dare say that the most of us have experienced the sensation which takes place when we take a hike into the country; how as soon as the fresh, pure air from the fields and woods begins to fill our lungs, the world seems to take on a new aspect, our minds are brighter at once and our thoughts quicken and become clearer. This is usually ascribed to the *change,* and that is about as far as the average person carries the thought, but as a matter of fact it is really due to the quality and quantity of pure air with its supply of energizing oxygen that is filling our blood with new life. Now most people will say it was the change of scene, the forgetting of our troubles and a variety of other reasons are ascribed, but if any of you are in the habit of going into the surrounding country where you live and do so with any regularity, or are in the habit of indulging in any of the various outdoor sports or forms of exercise, I am sure you will agree with me that it is not so much a matter of the change of scene as it is the matter of fresh air and circulation, and that these other reasons are of secondary importance to the normal person.

One of the greatest neglects of our profession is its utter disregard for many of the common sense or even traditional rules of hygiene and health. We seem to think that we are immune to the conditions which beset our fellow men, and the methods which he employs to offset them. As results of this supposed immunity we find ourselves with probably more consecutive hours of daily employment than any other class of men; shorter lived, and in the case of sickness, greater mortality; less time for self-improvement and recreation; less acuteness to create individuality; less ruggedness to withstand calamities and less recuperative power; less assertive power and broadmindedness, consequently less of the spirit to stick together with the consequent increased cost of maintenance and supplies; and lastly but by no means least, the drain on our posterity.

After a great deal of thought over these conditions I have reached the conclusion that a great deal of the blame lies with those who have gone before us, since they have brought us up in methods and set examples which cannot be easily overthrown in a short time.

In placing the blame on our ancestry in the drug business, the first thought in this connection is the question of hours, and upon this question rests almost all the rest of our difficulties. It was they who started and permitted the existence of our fourteen to sixteen-hour days, and seven-day weeks, and the majority of us have scarcely ever taken the trouble to sit down and think it over sensibly, to determine if such hours really are necessary and what effectual remedy is at hand.

The majority of pharmacists never stop to consider the cost of maintaining a store sixteen hours a day and every day in the year. They do not seem to be aware that the greater bulk of the business done outside of an ordinary business

day is done at that time only because the public knows that the drug store is open until midnight and they can get what they want at 11 p. m. just as easy as they could at 11 a. m. or 5 p. m. I had the experience of being called out of bed at 2 o'clock in the morning to renew a prescription for 1/10 gr. calomel tablets which the customer had been in the habit of having filled for years. Now why didn't he have it filled in the daytime? Simply because he didn't have to think that far ahead when it was a question of drugs; but would they dare to get a grocer up for a pound of butter?

I am not so much concerned with the details of the above question, however, as I am with the results, and it is to these that I must confine myself. Little thought is given to the effect on the employees who have to work these unreasonable hours, and it really ought to be one of the first thoughts. A clerk cannot put the same thought and care into the filling of a prescription at 10 o'clock at night, after he has worked all day, that he would at 10 o'clock in the morning, nor can he take the same interest in the selling of an article or the pleasing of a customer, that he might be expected to do in daytime. You may think it makes no difference in the work how long the man has been at his post, but those who have studied this problem know it does make a difference and that a man cannot do as good work 14 or 16 hours per day as he could in 8 or 10 hours.

Think of the class of men who would be attracted to the pharmacist's calling were it not for these unreasonable hours. Then again think of what might daily be saved in any store if the employees came in refreshed and had had an opportunity to consult the excellent literature which contains ideas, methods, etc., worth money, but which "goes a-begging" for the want of time and interest to assimilate it.

Another result of the night work is the almost utter impossibility to get any sort of a congregation of pharmacists together for the purpose of scientific discussion, or to hear a lecturer, no matter how important the subject may be or what benefits the pharmacist might derive from it. I have attended meetings of this kind where dollars and cents were actually given away, but no one was there to accept them. This question alone is well worth a very strong paper and not until concerted effort is brought to bear will its evils be overcome.

Let it be understood that I realize the impracticability of having the drug store open only eight hours per day, but just how long it shall be kept open is only a matter of detail. Now if the government is convinced that eight-hour days are necessary to maintain the proper discipline and health of its employees, is it any wonder that a pharmacist is a short-lived man, when in many instances he works double that number of hours per day, and many, in fact the majority, are actually busy during all those hours? I have spoken of the lack of acuteness to live business conditions. How can a man throw his best thought and energy into a transaction, or plan and devise ways and means to improve conditions when practically his only thinking or planning time is for a few moments in the intervals between customers or the manufacture of something in the laboratory? This condition, too, breeds laziness, for it robs a man of much latent incentive and makes true the old adage, "All work makes Jack a dull boy," and we are all more or less built like Jack.

In regard to the recuperative power of a man, much depends upon his environ-

ment, but by far the most essential thing is a constitution on which the drain of sleepless nights and dreary days will have but little effect until the reaction takes place and things begin to right themselves, or opportunities present themselves for action.

I am now brought to one of the most important parts of my paper as I see it—assertive power. We all need it if we are to succeed, but I believe as a class the members of our profession have ignored its cultivation to their great financial loss and because of a lack of it have allowed the profession to retrograde. Not only have we lost financially, we have lost morally, because we are now compelled by an ever exacting, thankless public to do any number of things without as much as "thank you," the doing of which is "cash business" by other merchants, who would no more think of doing them gratuitously than they would of handing over their bank account. Broadmindedness, one of the essentials of any truly successful, strong man, can only be developed by the average person through contact with other broadminded persons, travel, reading, etc., and though pharmacists gain an unusually wide range of knowledge of human nature, they are notoriously narrow-minded, as is shown by their treatment of each other. Now this lack of broadmindedness has had a direct bearing on your bank accounts in more ways than one. Especially is it true of the added cost of maintenance; where one store in a location might take care of the necessities of the community, five or six keep their lights burning and their force on hand, because they are afraid the other fellow might get ahead of them on his turn to keep open. Be as good as the other fellow all the time and you can take many an hour off for further improvement or recreation.

The Pharmacist's Recreation.—Just what methods and means we shall employ to keep us healthy and build up our bodies is largely dependent upon the individual and his environments, but one thing is certain, and that is, that there are means at every hand to suit everybody. Volumes have been written on the subject and information is to be had for the asking. First of all get out to the fields and woods as much as possible, in order to get all the fresh air you can. Then, when you get there walk as much as you can to get good circulation that the new air will have every opportunity to get in its work. Now there are several ways of getting into the country, but my own experience tells me that to go there with any amount of regularity one must have some definite place to go, and I think that is best accomplished by belonging to one or the other of the many country or athletic clubs which are to be found in or near every large city and the smaller cities and towns as well. The country clubs are not as expensive as one might imagine, and since they possess so many advantages, such as shower baths, dressing rooms, telephones and the like, one can go there and still be in touch with business, for an hour or so, during the afternoon. The best part of the country club, however, is the opportunity it gives for outdoor exercise. Here are to be found tennis courts, baseball diamonds, golf links, etc., so that one's exercise or recreation may be varied and thorough. Then again being members of such clubs brings one into contact with men of other occupations and thus we have a broadening effect and the making of friends.

Another form of exercise which I would strongly recommend is that of riding. There is scarcely anything so exhilarating as a brisk ride on a good horse, and

one can make arrangements with the various riding academies in the cities, whereby it becomes quite an inexpensive recreation. Of course those of us in the suburbs or towns can own and stable our own horse, but in the city this is not practicable and is expensive.

Another means of attaining our object is to become a member of a rowing association, or have our own boat or canoe, and use it at every opportunity. It may seem commonplace to be seen rowing a boat or paddling a canoe, but we soon get used to it and the fever will increase. I have spent days in one. Though I have perforce to paddle it on the same body of water the greater part of the time, still I get some new vision of some point each time. Many other ways are to be recommended, but I think I have mentioned the more easily attained and the most beneficial.

Educating Pharmacists in Athletics.—There was heralded in the journals about a year ago the result of a baseball game between two colleges of pharmacy, and that was the first attempt on the part of pharmaceutical institutions to indulge in competitive athletics. What was the real object of that baseball game? Was it to see which institution had the better team? Well, I am compelled to admit that that did have something to do with it, but the great result of that game was to break the fetters which had bound us so long and introduce the pharmaceutical students to each other and create in them the desire for outdoor life and recreation. In the institution with which I am connected and from which many of you graduated, we have undertaken the splendid work of physical instruction and the results have been most gratifying. The gymnasium is well equipped and well lighted and ventilated, and even though it is on the fifth floor of the building the students make continual use of it. Exercises calculated to create endurance, agility, free breathing, chest development and ease of movement are given by a competent instructor, and the work is carried on in a high class manner. In connection with the exercises there is a physical examination and the data obtained are most interesting and significant. It has helped many of the students to correct defects which have troubled them for years and we hope that in succeeding years the results will be even more pronounced. The final result of this work will be to inculcate the student with desire for this sort of work and to know the advantage of it, and when he becomes a proprietor he will be more likely to want to see his clerks get the same kind of instruction and to continue the good work of physical improvement thus begun.

In concluding, then, I hope that I have awakened an interest in the all important subject of the proper development of our bodies, that we can put our best into everything which we undertake, and I hardly think that any further arguments are necessary to convince my hearers that this subject has a very direct bearing on their earning capacity. I am also just as sure that they will agree with me that it is a most neglected asset, though one most likely to bring us comfort, for we often hear about the oil king who would give his fortune to be able to eat a square meal.

Finally let me urge the gentlemen present to think seriously over this subject and to put into practice their conclusions, and by their advice and example to help others do the same, that our profession may advance, its members enjoy the fruits of this world and our posterity be given the advantage of rugged constitutions.

Section on Historical Pharmacy

Papers Presented at the Fifty-Ninth Convention

JOHN ATTFIELD.

JOSEPH P. REMINGTON.

On March 18, 1911, there passed away one of the strongest men of the Victorian era, who had given up the greatest part of his life in improving the profession of pharmacy by his chemical knowledge, and his devotion to the best interests of the sciences which he loved, and of which he was generally acclaimed a master.

While the name of Michael Carteighe was known in America to the initiated, the name of Attfield is as familiar to those of the present generation as Proctor, Parrish, or Squibb. It is not the intention to draw comparisons in the careers of Attfield and Cartheighe, two stalwart defenders of the faith; for while both were intellectual giants, who consecrated their lives to the benefit of pharmacy, they were totally different in their personalities and the fields which each had selected for his activities.

John Attfield was a great educator. He wrote a book at a time when it was sorely needed, which drove away the mists which had gathered upon the chemical horizon, and pointed a course which led into a cleared atmosphere. The first edition of this book was instantly successful, and the English edition was probably no less successful than the one published in America. It has passed through nineteen editions. But even a brief review of his life is wanting if the publication of this book is given the greatest prominence.

Attfield was learned, resolute, brave and persistent. He was born in 1835, at Barnet, and the Rev. Alexander Stuart was his school teacher. Although he was destined to become a great teacher in chemistry, at the age of fourteen he was apprenticed to W. F. Smith, Ph. C., of Walworth, with whom he remained five years. He was sent to Bloomsbury Square, London, to enter the School of Pharmacy of the Pharmaceutical Society of Great Britain, and in 1854 was awarded the medals in chemistry, pharmacy, and in botany and materia medica.

Dr. Stenhouse, professor of chemistry in the school of medicine at Saint Bartholomew's Hospital, appointed John Attfield junior assistant. Among the other candidates for this position were Crookes, Mathieson, and Henry Watts, editor of Watts' Dictionary. Dr. Edward Frankland succeeded Dr. Stenhouse, and Attfield remained with him as demonstrator, and assistant in many of his researches.

At the age of twenty-seven, John Attfield was appointed director of the Laboratory at the Society's School, and he afterwards became professor of practical chemistry, when Professor Theophilus Redwood gave up a part of his work.

Professor Attfield then went to Tubingen, to complete his chemical studies, and obtained there the degree of Doctor of Philosophy. His thesis on "The Spectrum of Carbon" was read at the meeting of the Royal Society in June, 1862.

In 1896, after thirty-four years of teaching, his resignation was tendered, and upon his retirement from these active duties, a remarkable demonstration of appreciation and affection on the part of his friends and old pupils occurred on July 10, 1896. An album containing the signatures of two hundred public friends and one thousand grateful students was presented to him with a massive silver tea and coffee service. In the address on that occasion, which was signed by two eminent chemists, Charles Umney and John Moss, the following words occurred:

"On the occasion of his retirement from the Chair of Practical Chemistry in the School of the Pharmaceutical Society of Great Britain, a chair which he had occupied for a period of thirty-four years, from 1862 to 1896, to the great advantage of the recipients of his instruction. During the whole of this long tenure of his important office, Professor Attfield not only won and retained the respect of successive generations of students by the lucidity, accuracy, and thoroughness of his teaching, but he also endeared himself to them by his unfailing tact, kindness and urbanity. Not less successfully did he serve pharmacists and medical practitioners, and through them the public, by his versatile ability, untiring energy, and power of organization as an editor of the Pharmacopœia, and author of a manual of chemistry, and generally as a worker who unceasingly applied the resources of the great science of chemistry to the demands of the great art of healing. It is the earnest hope of his pupils and his many other public friends that he may long enjoy those blessings of health and leisure which he has so well earned. On behalf of a general committee of three hundred and fifty members, and of the whole twelve hundred signatories, including many prominent pharmacists and eminent men of science of all countries."

In the thirty-four years of Professor Attfield's connection with the Pharmaceutical Society of Great Britain, 2367 students received instruction from him. While this work and that of revising Attfield's Chemistry are achievements the most notable in his career, they are far exceeded by his work upon the British Pharmacopœia. He was one of three editors of the British Pharmacopœia, 1885; editor of the Addendum in 1890; editor of the British Pharmacopœia in 1898, and of its Indian and Colonial Addendum, 1900. During this time Professor Attfield contributed many papers upon chemical subjects to pharmaceutical literature.

Professor Attfield was one of the Founders of the British Pharmaceutical Conference in 1863, and was its Senior Honorary Secretary for seventeen years. At the close of this long service the members of the Conference presented him with 500 volumes of choice books which "ministered to the pleasures of a well-earned retirement." He never lost his interest in this national body, as he served as its President in 1882, and in 1883, and his views advocating and pleading for higher education were continually quoted.

Professor Attfield was frequently placed in embarrassing situations on account of his connection with the British Pharmacopœia. Constant effort was made to increase pharmaceutical influence in the work of revision, but the medical influence steadily resisted their demands. During this time, Dr. Attfield wanted pharmacists

and physicians to work in harmony to produce an Imperial Pharmacopœia. The most strenuous years of his life were occupied in establishing workable relations between the two professions.

The Chemist and Druggist of March 25, 1911, records that Dr. Attfield "began pharmacopœia revision when chaos prevailed in arrangements and manners, and he left it fifteen years later working smoothly, with perfect harmony between all parties, and the British Pharmacopœia universally adopted throughout the Empire."

Dr. Attfield was a man of great activity and versatility. He was always busy and he did nothing superficially. If he could not do good work in any direction in which his aid was sought, he would not attempt the work. A mistake or an error, especially one which he made himself, gave him personal pain. As a chemist he enjoyed a large practice as a consultant, especially in the subject of water and sewerage. But he was frequently consulted on all kinds of subjects requiring chemical knowledge.

For four years he was a member of the Council of the London Chemical Society, and was one of the founders of the Institute of Chemistry; and he was elected a Fellow of the Royal Society, an honor of great distinction in Great Britain. He was an honorary member of the American Pharmaceutical Association and over twenty foreign and colonial bodies.

One of the great sorrows of his life was the death of his son, Dr. Donald Harvey Attfield, who had received an excellent education at Cambridge, and was afterwards a demonstrator at King's College, London. He was a quarantine medical officer at Suez for a number of years, but while engaged in this work he was accidentally infected with tuberculosis, and eventually his life was sacrificed to the terrible white plague. Mrs. Attfield and two daughters remain to mourn their great loss.

The writer's recollections of Attfield upon first acquaintance are vivid. Quickness and facility of speech, a keen sense of humor, and general alertness made him appear at first like a typical American. Further acquaintance, however, proved that he was British to the core. Americanisms in speech interested him greatly. At a reception at Bloomsbury Square, he turned suddenly and asked the writer how Professor Maisch was. The answer, "He's keeping his end up very well," startled Attfield, and he moved off to say to one of his confreres, "What can he mean?" Whereupon four of his friends joined him and said, "What can you mean by such an expression?" Their smiling countenances proved that they were laughing at the Americanism, and the explanation, that the expression had originated from two men carrying a plank, and if one lagged he was dubbed "the man who could not keep up his end well." The explanation seemed to amuse the English brethren no less than the expression itself.

At the hotel table in Glasgow, in 1896, he heard an American ask, on a very hot day for some ice water. He immediately attacked the sufferer with, "Why do you Americans drink *iced* water? Don't you know that it ruins your stomachs, and will carry you off eventually, if you persist in icing your stomachs?" Subsequently he invited the American friend to his room, and showed him how he himself was suffering from inflammation of the stomach, for he had to use lavage

every day for a number of years. He recovered from this extremely annoying physical trouble, and neuritis developed in the later years of his life, from which he suffered greatly at times.

In 1871 he organized a movement to aid the Chicago pharmacists, when the Chicago College of Pharmacy was destroyed by fire, and his name is honored in this college for this great service in time of need.

John Attfield's heart was always young, and he sympathized with the problems and troubles of young people. His hand was always held out to them to give them help in every way that he could. His cheering words will never be forgotten by thousands of the youth of Great Britain.

One of his great ambitions was to visit America, and he even went so far as to fix a time when he thought he could leave; but unforeseen events occurred each time, and the promised pleasures had to be abandoned.

With Professor Attfield's pronounced views on hygiene, and his long service in protecting the public health, it should not surprise his family or friends that he should direct that his body should be cremated.

Thus has passed away into the great beyond, one of the noblest of our race; gifted beyond his fellows, he used his talents ungrudgingly, persistently, and successfully in the service of his fellow men.

"At the hands of thief or murderer few of us suffer, even indirectly. But from the careless tongue of friend, the cruel tongue of enemy, who is free? No human being can live a life so true, so fair, so pure as to be beyond the reach of malice, or immune from the poisonous emanations of envy. The insidious attacks against one's reputation, the loathsome innuendoes, slurs, half-lies by which jealous mediocrity seeks to ruin its superiors, are like those insect parasites that kill the heart and life of a mighty oak. So cowardly is the method, so stealthy the shooting of the poisoned thorns, so insignificant the separate acts in their seeming, that one is not on guard against them. It is easier to dodge an elephant than a microbe."—*William George Jordan.*

Reports of A. Ph. A. Committees

THE PROGRESS OF PHARMACY

Abstracts from the Report on the Progress of Pharmacy for the year 1911, by C. Lewis Diehl, Reporter.

(Fifth Installment)

Atropa Belladonna: *Influence of Nutritive Elements on Growth and Alkaloid Content.*—S. Vreven and C. Schreiber observe that wild belladonna is generally more active than the cultivated plant, and conjecture that this may usually be attributed to the influence of nutritive elements of the soil upon which it grows. The wild plants grow on ground chosen by themselves as best adapted to their vitality; the cultivated plants grow on soil chosen for them, which may not contain the necessary constituents favorable to the normal formation of alkaloidal bases. The small proportion of alkaloid so often found in the cultivated plants may be attributed either to deficiency or excess of the necessary food, or to want of equilibrium among the nutritive elements, nitrogen, phosphoric acid, and potash. Experiments have been made with soil deprived of the nutritive elements, and adding to it suitable manure. The results are summarized thus: Belladonna is shown to be very susceptible to the action of phosphoric acid, nitrogen, and especially potash. The want of these elements is seen in a distinct lowering of the yield. Plants cultivated in pots containing no added manure perish rapidly. The depression in the yield is much more pronounced in the roots than in the other organs of the plant. The time of flowering is retarded by absence of nitrogen and phosphorous, but not by that of potash. Plants deprived of the three elements referred to present a characteristic coloration; without nitrogen, they are chlorotic; without phosphorous, there is a violet tint, particularly of the veins; without potash, the plants are flabby. As to the alkaloidal content, the leaves of plants, grown on soil poor in nitrogen or phosphorous, contain little alkaloid, while in the case of plants cultivated in the absence of potassium salts, the leaves are rich in alkaloid. The experiments were made with a fertilizer having the following composition: Ammonium nitrate, 10 gms.; sodium phosphate, 12 gms.; potassium carbonate, 5 gms.; calcium carbonate, 4 gms.; magnesium carbonate, 4 gms. The results obtained by omitting one or other of the ingredients are as indicated above. The cultures were made on a muddy earth of average consistence (l'alluvion de la Herck), to 22 kilograms of which the above quantity of nutritive mixture was added.—Pharm. Jour. and Pharmacist, June 24, 1911, 843; from Ann. de Pharm., March, 1911, 97.

Bryonia Dioica: *Constituents of the Root.*—The principal constituent of the root *Bryonia dioica* described by previous investigators is bryonin, a glucoside body to which various formulas have been assigned. Dr. F. B. Power and Dr. C. W. Moore have now subjected this root to a full chemical examination with the following results: The drug contains an enzyme which causes the hydrolysis of amygdalin, salicin, and also the glucoside of bryony. An alcoholic extract of the drug was prepared and distilled in steam, when a small quantity of volatile oil passed over it. The non-volatile residue consisted of a dark aqueous liquid and a brown resin. The aqueous liquid yielded to the ether a colorless crystalline neutral substance, $C_{20}H_{30}O_5$, melting at 220-222°, specific rotation (a)D= +58.6°. By treatment with amyl alcohol a yellow bitter amorphous glucosidic product was obtained. The aqueous liquid also contained an amorphous alkaloidal principle and a sugar giving an osazone melting at 208°-210°. The brown resin was extracted in the usual way with various solvents, but it was only from the petroleum ether extract that any definite products were obtained. This yielded a phytosterol, $C_{27}H_{46}O$, which is optically inactive, oleic, linolic, palmitic, and stearic acids, and a dihydric alcohol, bryonol, $C_{22}H_{34}O_2(OH)_2$, which gives color reactions similar to those of the phytosterols. This alcohol belongs to the series $C_nH_{2n-8}O_4$, of which three other members, ipurganol,

$C_{21}H_{32}O_2(OH)_2$, grinderol, $C_{23}H_{36}O_2(OH)_2$, and cucurbitol, $C_{24}H_{38}O_2(OH)_2$, have been previously described by Dr. Power. The authors have also examined bryonin, and conclude that it is a complex mixture not entirely glucosidic in character. Physiological experiments made by Dr. Dale showed that bryonol and the alkaloidal substance are purgatives, but the glucoside is inactive.—Pharm. Journ. and Pharmacist, May 13, 1911, 626.

Digitalis: *Action of old Powder on Hydrogen Dioxide.*—E. Choay communicates the results of an investigation regarding the action of old digitalis powder on hydrogen dioxide. A quantity of fresh leaves of Alsace digitalis was divided into three lots and dried: (1) *in vacuo* in the cold; (2) in the air; (3) in an oven at 40°. The dried leaves, powdered, were placed in desiccators. After five months, the powder from (1) was still quite green, and possessed the odor of the fresh leaves. The powders were then tested to see if they still retained the property of decomposing hydrogen dioxide, and if so, if they had different degrees of catalytic activity. For the purpose of comparison, 1 gm. of each powder was macerated for two hours at 15°, in 40 cc. of distilled water, when there was added 10 cc. of 12-volume, neutral, hydrogen dioxide; after an hour's contact, the titre was taken in each case on 5 cc. of the filtered liquid, with a solution of permanganate (3.14 gms. $KMnO_4$ per litre). A parallel series of tests was made of macerations of 1 gm. of the powder and 40 cc. of water, but before the addition of hydrogen dioxide the liquids were boiled for ten minutes and the original weight made up after cooling, and then titrated with permanganate under the same conditions. A control mixture made with 40 cc. of water and 10 cc. of the hydrogen dioxide showed that 5 cc. required 21 cc. of the permanganate solution. The results obtained were as follows: Powder (1), maceration not boiled, required 9.9 cc. of permanganate; boiled maceration, 22.1 cc. of permanganate. Powder (2), respectively, 13.3 cc. and 23.2 cc. Powder (3), respectively, 20.5 cc. and 22.2 cc. The author concludes that the method of drying the leaves has a considerable influence on the catalytic activity. Indeed, after five months' preparation this activity is about twenty times greater for the leaves dried *in vacuo* in the cold than for those dried in an oven; those dried in the air appear to have an intermediate activity.—Pharm. Journ. and Pharmacist, May 31, 1911, 621; from Jour. de Pharm. et Chim., 1911, 3,343.

Rhubarb: *Constituents.*—F. Tutin and H. W. Clewer have contributed a paper detailing the results of their researches on the constituents of rhubarb. Sun-dried rhubarb was exhausted with hot alcohol, and the concentrated extract obtained by evaporation of the alcohol was distilled in steam. The volatile constituents consisted of a small quantity of essential oil and palmitic and hexoic acids. The non-volatile portion was extracted with water, and from the resulting liquid by extraction with ether and treatment of the residue from the ethereal solution with petroleum ether and various alkalies the following substances were isolated: Cinnamic and gallic acids, rhein, a new anthraquinone derivative. $C_{17}H_{10}O_8$ m. p. 297-297°, to which the name rheinolic acid is given, emodin, aloe-emodin, emodin mono-methyl ether, and chrysophanic acid. The aqueous liquid yielded to amyl alcohol a crystalline mixture of glucosides of rhein, emodin, aloe-emodin, emodin mono-methyl ether, and chrysophanic acid, as well as some tannin, gallic acid, and an amorphous non-glucoside resin; the latter, which, on hydrolysis, yielded cinnamic and gallic acids, rhein, emodin, aloe-emodin, emodin mono-methyl ether, and chrysophanic acid, and a new compound having the formula, $C_{14}H_{12}O_5$, m. p. 256°, probably trihydroxydihydroanthracene. This resin is the principal purgative constituent of the drug. Dextrose in a crystalline state, and levulose were also obtained from the aqueous liquid. The water-insoluble portion of the non-volatile substance yielded to petroleum ether a mixture of palmitic, stearic, oleic, linolic, and linolenic acids, and also a phytosterol (verosterol), $C_{27}H_{46}O$, as well as rhein, rheinolic acids, emodin, aloe-emodin, emodin monomethyl ether, chrysophanic acid, a trace of a substance not melting at 340°, and more of the crystalline mixture of glucosides. The presence of aloe-emodin in rhubarb has not been previously recorded. It therefore appears that the "rheoanthra-glucoside" of Tschirch and Henberger was a mixture of the crystalline glucosides of the anthraquinone derivatives, and the non-glucosidic resin referred to, while "rhabarberone" and "isoemodin" were simply impure aloe-emodin.—Pharm. Journ. and Pharmacist, April 22, 1911, 529.

Ergot: *Active Constituents and Assay.*—A. Kazay contributes an interesting paper on the active constituents of ergot and their assay. According to Tanret, Kobert, and Keller, the chief active constituent of ergot is the white crystalline substance ergotine, $C_{35}H_{40}N_4O_6$. For the detection of this substance the Hungarian Pharmacopœia adopts Keller's test, which is as follows: The substance is dissolved in concentrated acetic acid containing a little ferric chloride, and concentrated sulphuric acid poured on. A violet-blue layer is formed at the surface of separation of the two liquids. Ergotinine is an unstable substance, and in presence of moderately concentrated acids changes into cornutine, an amorphous water-soluble body, which gives a red iridescent layer by Keller's test. The author was unable to get anything but the red color of cornutine by Keller's test when using commercial preparations of ergot which had been exposed for some time to a high temperature in the process of manufacture. In order to investigate the relationship of cornutine to ergotine the author prepared an extract by Keller's process. The color layers obtained by the above test were examined spectroscopically. With cornutine an absorption band in the blue portion of the spectrum is obtained, and this was readily observed when testing commercial extracts. The parahydroxyphenylethylamine of Berger and Dale is probably a decomposition product of ergotine or of proteid matter. Several other active constituents of ergot have been described, but none gives any characteristic reaction which might be used to detect the presence of ergot. For this purpose the presence of the coloring matter sclerythrin must be proved by a spectroscopic examination. For the assay of ergot preparations the author recommends extraction with ether after treatment with alkali and determination of the nitrogen in the residue from the ethereal extract, by a modification of Kjeldahl's method.—Pharm. Journ. and Pharm., April 15, 1911, 499, from Ztschr. d. Allgem. Aestr. Apoth. Ver. (1910), 547.

Helianthus Annuus: *Basic Constituents of the Flowers.*—In Russia various parts of the sunflower are in common use for medicinal and other purposes, tinctures prepared from the fresh flowers and leaves being used in domestic practice as a substitute for quinine. In the belief that the activity of the flower depended on alkaloidal substances, E. Buschmann examined an extract prepared from the flowers and stalks of the plant. When this was dissolved in water, fatty and resinous substances separated, which were removed by shaking out with petroleum ether; the aqueous liquid was then precipitated by bismuth potassium iodide, the precipitate washed and decomposed by lead oxycarbonate, and the alkaloidal solution acidified with hydrochloric acid and concentrated. Crystals of betaine hydrochloride were thus obtained, and after as much as possible has been removed, the mother-liquor was examined and found to contain choline chloride. The two bases betaine and choline were identified by preparing and analyzing a considerable number of characteristic double salts and other compounds. No other basic substance was found, but it appeared that the proportion of these two bases present was enough to account for the observed activity of the extract.—Arch. d. Pharm. 240 (1911), No. 1, 1.

Mangrove Bark: *Uses and Constituents.*—H. Bocquillon says that there are two classes of mangrove bark, the *red* and the *grey*, which are used industrially as a tanning substance and therapeutically as a remedy for leprosy, both varieties represented in a number of species, forming trees 4 to 6 meters in height. The red belong to the Rhizophoraceæ, the grey to the Combretaceæ. The species (red) employed in therapeutics are *R. mangle, R. mucronata, Bruquiera gymnorhiza,* and *Coccoloba uvifera;* the species (grey) used therapeutically are *Conocarpus erecta,* and *Avicennia tomentosa.* Analyses of the barks of the various species give similar results; the ash is 5.5 per cent., consisting of carbonates and chlorides of potassium, sodium, calcium, and iron. The percentage composition of the bark is given as follows: Wax, 0.335; fatty matter, 0.335; tannin, 20.00; resin, 13.55; starchy matter, 5.00; glucoside, very abundant; alkaloid, none. The red coloring matter becomes cherry-colored with alkalies turning to yellow, with formation of a precipitate with acids. Mangrove is used in the same forms as cinchona-powder, tincture, soft extract, syrup, wine, and especially liquid extract, and decoction. The dose of the liquid extract is 5 gm. twice daily, increasing to 30 gms. twice daily if desired; the dose of the soft extract is from 2 to 8 gms. daily. Used in leprosy, it is administered in the form of liquid extract, in doses of 10 gms. daily, but in two instalments, in-

creasing by 5 gms. a day up to 60 gms. The soft extract is given in 8 gm. doses daily, but in this form gastric intolerance and giddiness are sometimes produced. The drug is also used in the form of baths and lotions, and the decoction contains 30 gms. per litre. Amelioration of the disease is observable in fifteen days, but the cure requires a year. Besides its use in leprosy, mangrove is valued in the colonies as an astringent in lotions for the eye-trouble; internally it is used in diarrhœa and for tuberculosis, while the powdered bark is used as a febrifuge.—Pharm. Journ. and Pharmacist, June 24, 1911, 843; from Rep. de Pharm., May, 1911, 195.

Ash Seeds: Properties of the Fixed Oil.—An investigation of the fixed oil, extracted by W. Bach from the seeds of the ash (*Fraxinus*) in a yield of 9.7%, shows this oil to have the following characters and constants: It was brownish yellow, moderately viscous, and had an odor resembling that of tea. It possessed the following constants: Specific gravity, 0.9181; saponification value, 168.5; iodine value, 129.5; Reichert-Meissl value, 1.68. The unsaponifiable portion amounted to 5.5 per cent. and consisted of phytosterol. The freshly-prepared oil contained 1.71 per cent. of free acid, reckoned as oleic. The fatty acids obtained by saponification of the oil melted at 36.8° and solidified at 28.6°, and had an iodine value of 125.8 and saponification value of 181.7. The oil appeared to resemble the oils of soya beans and of sunflower seeds, and to possess very feeble drying properties, an exposed thin film not being hard after fourteen days.—Pharm. Journ. and Pharmacist, June 24, 1911, 843; from Chem. Ztg., May 4, 1911, 478.

Cork: Chemical Nature and Constituents.—It is well known that cork contains a substance, suberin, which can be saponified with potassium hydroxide solution. From this solution, in addition to other fatty acids, ***phellonic acid*** can be isolated. This acid is, according to the author, a hydrocyclic substance. On oxidation the ring is broken and the aliphatic phellogenic acid or its isomer isophellogenic acid is obtained. In contradicton to other workers, M. von Schmidt now has shown that the portion of cork soluble in chloroform contains not only cerin but also glycerides of fatty acids, and that the true cork substance is free from these substances. Investigations of the chemical nature of cork have shown that phellonic acid forms anhydrides, and these anhydrides are present in cork, along with polymers of liquid and solid fatty acids. On heating the crude fatty acids from cork, water is split off, and a product is obtained which is completely insoluble in indifferent solvents. The fatty acids thus changed are unalterable by further heat, they are impermeable to gases, and represent the true cork-substance. If filter paper, or better, fine sawdust, is saturated with the fatty acids, and then heated to 140° a substance is obtained which is indistinguishable from cork, except that the structure is absent. Besides phellonic acid, there appears to be three other fatty acids present in cork.—Pharm. Journ. and Pharmacist, April 1, 1911, 433; from Oest Chem. Ztg., 1911, 21.

Burnt Sponge: Constituents.—The charcoal obtained by the ignition of sponge without free access of air has had more or less application in medicine since before the discovery of iodine in 1811 by Courtois, and a tincture of such charcoal (Spongia Usta) enters into homœopathic pharmacy. Recorded investigations into the constituents of burnt sponge have shown very different results, and it appears that the material found in commerce does vary considerably. Seven samples, obtained from different sources, contained from 0.31 to 0.81 per cent. of iodine, 7.92 to 23.16 per cent. of lime (CaO) as calcium carbonate, 1.05 to 2.21 per cent. of iron, and from 3.35 to 15.30 per cent. of sand. Tinctures prepared with 90 per cent. and 60 per cent. alcohol, and analyzed, showed that the latter was more suitable for dissolving the principal constituents. The average amount of iodine in a number of samples of the tincture was 0.075 per cent.—Apoth. Ztg. XXVI (1911), No. 33, 317.

Tincture of Strophanthus: Proposed Process of Preparation and Assay.—J. Haycock discusses the different methods of assaying strophanthus seeds and the tincture, and recommends the following which, as applied to the seeds, may also be used for standardizing the tincture.

(1) Twenty gm. of the powdered seeds are percolated with either petroleum ether or ethyl ether, to remove the oil, as it has been proved beyond doubt that neither of these solvents dissolve any appreciable amount of strophanthin.

(2) The seeds so treated, are then perco-

lated with 70% alcohol until exhausted; the tincture is evaporated to a soft extract at a low temperature, the extract dissolved in 100 cc. of water and the solution filtered into a separator.

(3) Then add to the filtrate 2 cc. of 25% H_2SO_4, and shake out the resulting mixture three times with 20 cc. of ether, to get rid of any trace of oil that might be present.

(4) The aqueous solution of the extract, after this treatment, is warmed on a water bath for one hour at 75° C., whereby the strophanthin is split into strophanthidin and strophanthobiose methyl ether.

(5) When cool, the liquid is returned to the separator and shaken out three times successively with 10 cc. of chloroform, which dissolves the strophanthidin, and leaves it on evaporation to a small bulk in a tared dish, crystallization being facilitated by the addition of a little alcohol; it is finally dried below 65° C. and weighed.

The author suggests that the *Tincture of Stropanthus* be made in accordance with the above observations—removing the oil from the seeds, percolating the oil-freed seeds with 70% alcohol, and adjusting the percolate to a standard of 0.1% w/v strophanthin by the process described. This chemical method of standardization is regarded by the author to be quite as good, if not better, than the present method of physiological assay.—Pharm. Journ. and Pharmacist, April 29, 1911, 553.

Bixin: Chemical Constitution.—A. Heiduschka and H. Riffart observe that, although bixin has long been known as a constituent of *Bixa orellana,* its constitution has not been established. The formula assigned by Zwick, $C_{27}H_{29}O_2(OH)_2OCH_3$, appears to be erroneous; only one hydroxyl group is present, and the di-potassium salt is only formed by the saponification of the methoxyl group. The empirical formulæ, $C_{26}H_{34}O_5$ and $C_{25}H_{34}O_5$, have both been given for bixin, and the latter appears to be the correct one. If bixin is brominated in glacial acetic solution, ten atoms of bromine are added, and the product contains 62.48 per cent. of bromine; but if the bromination is carried out in chloroform solution, the product contains 71.45 per cent. of bromine and appears to be a tetrahydromide of the decabrombixin, $C_{25}H_{38}O_5Br_{14}$, or $C_{25}H_{34}O_5Br_{10}$, 4HBr. Similarly, chlorination of bixin in chloroform solution gives a compound containing 51.92 per cent. of chlorine, corresponding to the formula $C_{25}H_{34}O_5Cl_{10}$, 4HCl. The iodine absorption value of bixin, determined with either Wijs' or Hubl's solution, agreed with the addition of ten atoms of iodine. Dry hydrochloric acid gas acting on bixin in chloroform solution gave the compound $C_{25}H_{34}O_5HCl$.—Arch. d. Pharm. 249 (1911), No. 1, 39.

Starch: Preparation as an Indicator.—L. Mathiew observes that in using starch as an indicator in end reactions with iodine solutions there is often indistinctness of the terminal point, when the blue color may be evanescent or the color may vary from violet to rose, due to the presence of dextrin. Further, starch solutions may contain swollen grains, which retain the blue color somewhat persistently, and thus destroy the delicacy of the end reaction. The author, therefore, advises the use of soluble starch, which he prepared thus: The starch flour is digested for some time with a solution of hydrochloric acid, 1 in 1,000, then washed with distilled water, dried at 30°, and heated for some hours in an oven at about 100°. The weak acid treatment takes out traces of alkaline bases and alkaline earths, and transforms neutral phosphates into acid phosphates. When it is reduced to the dry heat its physical state is gradually modified into that of a soluble starch. The starch thus prepared and dried keeps perfectly. For use as a reagent 1 gm. is dissolved by boiling for a few moments with 100 cc. of water and filtering. The resulting solution is very limpid, free from granules, and with iodine is colored pure blue, the blue color being instantly discharged on removal of the excess of iodine. The use of preservatives is condemned.—Pharm. Journ. and Pharmacist, April 1, 1911, 433; from Ann. de Chim. Analyt. 15 (1911), 51.

Phenol: Simple Method of Determination of the G. P. V.—F. Lehmann directs attention to the method of the G. P. V. for determining phenol, which satisfactorily corrects certain errors in the "tribromide" method formerly official. The process consists in adding to a solution containing phenol known quantities of solutions of potassium bromide and bromate, acidifying with sulphuric acid, and shaking in a stoppered flask; after fifteen minutes standing the excess of bromine is determined by adding potassium iodide

and titrating with thiosulphate. If the bromate solution is made to contain 1.6702 gms. of $KBrO_3$ in 1 litre, 50 cc. of it corresponds to 30 cc. of N/10 thiosulphate; if therefore 50 cc. of the bromate solution is employed in a given case, the number of cc. of thiosulphate used is to be deducted from 30, and the difference multiplied by 0.001567 gives the weight of phenol precipitated.—Apoth. Ztg. XXVI (1911).

B-Amino-ethyl-glyoxaline: One of the Active Principles of Ergot, obtained by Synthesis.—Dr. F. L. Pyman has applied Gabriel's method for the preparation of glyoxaline derivatives to the production of 4- (or 5) B-amino-ethylglyoxaline, one of the active principles of ergot, on a commercial scale. Diaminoacetone is treated with potassium thiocyanate, and the resulting compound on removal of the sulphur yields 4-aminomethyl-glyoxaline. This is converted successively into the alcohol by means of nitrous acid, into the chloride by means of sodium hypochlorite, and into the cyanide by means of potassium cyanide. The cyanide then on reduction yields the 4-B-amino-ethyl-glyoxaline, which, as obtained by this method of synthesis, is a very reactive substance.—Pharm. Journ. and Pharmacist, April 22, 911, 530.

Ozone: Generation by a Chemical Method.—P. Malaquin has made an addition to the small number of purely chemical processes by means of which ozone may be generated. When ammonium persulphate, 20, is heated on the water-bath with nitric acid, specific gravity 1.310, reaction takes place rapidly at 65 to 75° C. with evolution of gas. This gas is found to consist of 3 to 4 per cent. of ozone, 4 to 4.5 per cent. of nitrogen, less than 1 per cent. of carbon dioxide, and the rest oxygen. Gas is evolved very slowly at the normal temperature of the laboratory; and more rapidly at 50 to 60° C., but with considerable rapidity at the temperature above indicated. The author has devised, and figures, a special apparatus, wholly of glass, for the generation of ozone by this process. Although the yield of ozone is not very high, the method affords a convenient means for its production. The persulphates of potassium and of sodium do not appear to yield so much ozone with nitric acid as the ammonium salt.—Pharm. Jour. and Pharmacist, May 6, 1911, 587; from Journ. de Pharm. et Chim., 1911, 3,329.

REPORT OF COMMITTE ON DRUG MARKET.

(Continued from page 375)

COPAIBA. Ten samples were free from fixed oils, turpentine and paraffin oils, but eight of them contained gurjun balsam. R. P. MCKEOGH. The test for gurjun in copaiba is too delicate for use in inexperienced hands, often giving very fallacious results. A test for rotary property should be in the U. S. P. to exclude African Balsam. The oil should be distilled and tested and not be below —5°. Genuine oil rotates as high as —35°. DRUG TOPICS.

COTO. This drug continues unobtainable, according to the statement of importers. None has been received in the port of New York for several years. H. H. RUSBY.

PARA-COTO. This drug has been almost unobtainable and almost everything that has been offered under this name has been spurious, eight different barks having appeared under this name during the year. H. H. RUSBY.

CREAM TARTAR. Two samples offered as strictly U. S. P. tested 96.48 per cent and 98.72 per cent only. E. H. GANE.

CRESOL. One lot rejected, as it contained a large percentage of phenol. E. H. GANE.

CUBEB. The official standards for this article should be carefully revised, after a thorough investigation of the relative values of the different forms of the drug. The definition calls for the "unripe but fully grown fruit," but there are the best of reasons for believing that the fruits when not more than half grown are far richer in active constituents than when fully grown. Certainly the percentage of oil is then very much greater. Before the official definition can be revised intelligently, the relative percentage of all the other constituents should be carefully investigated, and if the present indications should be thus verified, the words "but fully grown" should be deleted. H. H. RUSBY.

CUDBEAR. Varies much in quality.

Sample	Moisture	Ash	Chlorine in Ash as NaCl
1	7.0	11.7	1.88
2	4.8	42.7	31.23
3	10.5	66.8	59.80
4	4.95	48.85	42.40
5	3.0	66.25	60.70
6	6.7	4.40	Trace

Sample	Dye test Arata	Filtrate from Lead S. S.	Dying on Cotton, Alum Mordant
1	O. K.	Slt. pink	Slt. color
2	O. K.	Slt. pink	Colorless
3	O. K.	Slt. pink	Slt. color
4	O. K.	D'c'd pink	Slt. color
5	O. K.	D'c'd pink	Slt. color
6	O. K.	Colorless	Colorless

*Presented at the Fifty-ninth Annual Convention.

DIGESTIVE SOLUTION. Claimed to be very active, capable of digesting starches, albumins, fibrins, etc. It tested as follows:

Alcohol, 15.14 per cent; extractive, sug., etc., 27 per cent; 1 part digests albumen, none; converts starch, 2½ parts; dry fibrin, 0.73. E. L. PATCH.

DIGITALIS. Increasing doubt is being cast upon the claim that a second year leaf is in any way superior to that of the first year. It is not the province of a pharmacognosist to pass upon such a question, and it is greatly to be regretted that pharmacologists do not determine the case so that we may know how to act in regard to it. There is, moreover, grave doubt as to whether the pharmacologists are on the right track in their tests. Their idea seems to be that the therapeutical value of this drug varies directly with its toxic power upon the animals experimented upon. Now the object of administering Digitalis therapeuticaly is not to kill the patient, and there is no little reason to believe that the therapeutical constituent is not the one that kills the cat. Furthermore, the variation in its percentage may not correspond at all with that in the percentage of the latter. H. H RUSBY. It has been well determined that leaves of first year growth are equal to or better than those of second year growth, and that a well-cured drug does not deteriorate. See CAESAR AND LORETZ in Chemist and Druggist. Assays of Digitalis powder over eighteen months showed no appreciable change. E. L. PATCH.

ECHINACEA. Three lots were found to consist of the roots of some species of brauneria other than brauneria pallida, which is the source of true Echinacea. Another lot consisted of the roots of rudbackia fulgida. O. P. & D. Reporter.

ELIXIR CALISAYA N. F. Twenty-five samples from retail stores: Alkaloids, 0.042 to 0.318 per 100 Cc. Color from colorless to nearly black. In several a heavy ppt. ROY A. PECKHAM.

ERGOT. There has been considerable trouble during the year from the offerings of Ergot of poor quality. The importance of a drug of first quality is more important in the case of Ergot than of most drugs, and its quality is exceedingly sensitive to changes which result in only slight differences in appearances and physical properties. Considering that there is no chemical standard for this drug, it thus frequently happens that an importation which demands rejection on therapeutical grounds will appear satisfactory to the ordinary observer, so that a controversy will arise. H. H. RUSBY.

ETHER U. S. P. 1890. Ether that has stood for some time may contain hydrogen dioxide, supposed to be developed by action of ozone, formed by evaporation of Ether, upon the water present. DRUG TOPICS.

FORMALDEHYDE. Often runs a little low owing pehaps to partial polymerisation. Several lots tested 37.2 per cent to 38 per cent. W. L. SCOVILLE.

FRANGULA. A spurious bark, apparently a species of Rhamnus, has been found mixed in considerable quantity with Frangula, and should be carefully watched for by dealers. The bark, in quills of the same size, is much thicker than that of Frangula. It is rougher on the surface, of a more dull gray, has a shorter fracture, but the resemblance to frangula in some of its forms is rather close. H. H. RUSBY.

GAMBIR. Eight samples gave the following:

Ash	Soluble in alcohol
4.03	80.8
4.07	78.6
4.80	76.9
19.3	77.5
22.6	78.4
22.7	78.
31.5	79.5
32.	79.5

J. B. YOUNG.

GINGER ROOT. Jamaica Ginger gave following percentages of alcoholic extract: 6 per cent, 4.6 per cent, 3.3 per cent, 3.5 per cent, 3.3 per cent, 3.8 per cent, 5.9 per cent, 4.6 per cent. E. L. PATCH.

GLYCERIN. Manufacturers pay more attention to getting a colorless glycerin than to purity. In consequence most of the glycerins will develop a bad odor in acid mixture from the fatty acids and aldehydes contained in them. W. L. SCOVILLE. 5 Cc. glycerin with 5 Cc. of water and 1 Cc. diluted sulphuric acid, shaken and set aside for fifteen minutes, should not develop a disagreeable odor. A. B. LYONS.

GOLDENSEAL. The small amounts obtainable test high in alkaloid. Seven packages assayed 2.96, 3.01, 3.26, 3.3, 2.9, 3.5, 2.72 per cent respectively. E. H. GANE. 3.02 per cent, 3.2 per cent, 3.2 per cent. E. L. PATCH.

GUM. Advertised as a superior product for tablet making and other pharmaceutical uses. Proved to be white potato dextrine. E. L. PATCH.

HEROIN. Variations in melting point of 10 to 15 degrees are found in Heroin and Heroin Hydrochloride. W. L. SCOVILLE.

HYDROGEN PEROXIDE. Thirty-two samples ranged in strength from 0.63 per cent to 3.49 per cent. Twenty-nine more were below 3 per cent, three less than 2 per cent, and two others less than 1 per cent. Solids ran as high as 0.366 per cent. Eighteen exceeded the limit for acidity. Twenty-four contained Acetanilide. N. A. R. D. NOTES.

HYOSCYAMUS. One sample of annual leaf assayed 0.023 per cent alkaloids. E. H. GANE. 0.057 per cent, 0.097 per cent, 0.118 per cent. E. L. PATCH.

INSECT POWDER. Stems are largely used for powdering and the claim is made that these are as active as the flowers. E. H. GANE. Considerable quantities of Insect Flower stems continue to arrive. It seems impossible that they could be used for any other purpose than that of substituting or adulterating insect flower powder. Our histological pharmacognosists have published such descriptions and illustrations of powders adulterated

in this way, that no one who has had even an elementary training in the use of the microscope should be at a loss to detect the fraud. H. H. RUSBY.

IPECAC. 2.4 per cent, 1.97 per cent, 2.26 per cent, 1.97 per cent, 2.4 per cent, 2.28 per cent, 2.33 per cent, 2.18 per cent, 2.43 per cent. E. L. PATCH.

IRON LACTATE. One sample was only partially soluble and contained much ferric lactate. E. H. GANE.

JABORANDI. 0.26 per cent, 0.165 per cent, 0.3, 0.2 per cent. E. L. PATCH.

JALAP. The poorest lot offered tested 6.75 per cent and the best 20.06 per cent resin. E. H. GANE.

Total resin 8.05%	Ether soluble 1.2 %
Total resin 11.85%	Ether soluble 1.1 %
Total resin 12.2 %	Ether soluble 1.35%
Total resin 9.78%	Ether soluble 1.18%
Total resin 7.4 %	Ether soluble 0.95%
Total resin 13.84%	Ether soluble 1.24%

E. L. PATCH.

KAMALA. Twelve samples—all free from starch—Ash 7.7, 6.4, 4.5, 6.5, 7.2, 15.7, 7.7, 18.2, 5.3, 24.6, 7.7, 5.2. C. B. WHEELER.

LEMON EXTRACT. Two lots were free from oil. Others 6 per cent upward. M. S. B.

LOBELIA HERB. 0.6 per cent alkaloid. E. L. PATCH.

MAGNESIA CALC. Magnesia labelled "For technical purposes only," but sent for medicinal use, assayed 92.2, 89.7, 86.6, 95.9 and 93.1 per cent respectively. E. H. GANE.

MAGNESIUM SULPHATE. Dried tested 95 per cent monohydrated. E. L. PATCH. The dried salt, if monohydrated, should contain 87 per cent of anhydrous salt, if dihydrated, 77 per cent. M. C. W. had 67.2 per cent anhydrous, 7.29 per cent water. P. W. R. 64.93 per cent anhydrous, 19.43 per cent water. Merck 54.27 per cent, 26.16 per cent water. W. A. PUCKNER AND L. A. WARREN.

METHYLENE BLUE. Contains 0.1 per cent to 1.0 per cent ash. Zinc is usually present. W. L. SCOVILLE.

MUSTARD. The presence of Charlock in Mustard used as a condiment is very common and frequently very excessive in amount. Provisions for its detection in both whole and powdered form should carefully be made in the pharmacopœia. H. H. RUSBY.

MYRRH. Is 30.1 per cent to 42 per cent soluble in alcohol. W. L. SCOVILLE.

NUX VOMICA. One lot of powdered assayed only 1.19 per cent Strychnine. E. H. GANE. 1.26 per cent, 1.22 per cent, 1.268 per cent, 1.23 per cent, 1.22 per cent. E. L. PATCH.

OIL ANISE. One lot of Manilla oil proved of excellent quality, giving the following results: Congealing point 15°C. Sp. gr. 0.975. Opt. rotation 0.25'. Soluble in all proportions in 90 per cent alcohol. E. H. GANE.

OIL CAJUPUT. Lots meeting other U. S. P. requirements are low in gravity, running 0.911 or under instead of 0.915 to 0.925. E. L. PATCH.

OIL CASSIA. Lots sold as redistilled gave 11 per cent residue and lots marked lead free, not redistilled, only 11.5 per cent residue. E. L. PATCH. Cassia Oil and Cinnamon Oil are not alike. The names should not be used interchangeably. Oil Cinnamon is distilled from scrap bark, and if pure, may contain 80 per cent to 90 per cent aldehyde. It is often adulterated with leaf oil. Oil of Cassia is distilled almost entirely from the leaves and contains from 75 per cent upward of aldehyde. Shipped in lead containers it often contains lead. AM. DRUGGIST.

OIL CITRONELLA. Frequently adulterated with turpentine and petroleum oil. AM. DRUGGIST.

OIL EUCALYPTUS. One sample offered contained only 40 per cent of Eucalyptol. E. H. GANE.

OIL FENNEL. Congealing point, +6°C., +3.5°C., +5°C., +5.50°C., +6°C., +6.5°C., —16°C., +3°C., +2.85°C. E. L. PATCH.

The requirements of +5°C. is generally agreed to be too severe. Manufacturers abroad tell us the freshly made oil will show as required but almost immediately begins to undergo a natural change, one indication of which is the dropping of the congealing point. This does not impair the quality of the oil. Our last importation was 5° when it left the factory, was 4.5° when it reached us, and has gone down further since. Our stock at different times has tested 2.5° upwards. The way the "pluggers" standardize this is by adding Oil of Anise having a congealing point of 15°C., an admixture defying detection by any ordinary means. DODGE AND OLCOTT.

OIL LINSEED. Is commonly extended with corn oil. Soya bean oil has been used, but to much less extent. E. H. GANE.

OLIVE OIL. Various samples were mixtures of Olive Oil and Cottonseed Oil or all Cottonseed. M. S. B.

OIL ORIGANUM. It is stated in N. A. R. D. Notes that no Oil of Origanum genuine is obtainable and Oil Red Thyme is offered instead. There are dealers who guarantee to furnish genuine Oil of Origanum distilled from Origanum vulgare. One such product had sp. gr. 0.910, was soluble in one-half volume of alcohol and one volume of 80 per cent alcohol, and gave 30 per cent phenols and would meet requirements for Oil Red Thyme. E. L. PATCH.

ORGANUM. The experiences this year with the different species of Origanum have been most interesting. It has been a revelation to me to find that there are quite a number of species of this genus which possess a strong odor and taste of thymol and which undoubtedly contain a considerable quantity of that substance. This renders them wholly unlike Origanum Majoranum and Origanum vulgare. The medicinal relations of these substitutes are almost nil, but they are considerably imported for use by our Italian citizens as a condiment, and are very frequently imported under the name of thyme. H. H. RUSBY.

OIL PEPPERMINT. Marked "Twice Rectified," "U. S. P.," "Redistilled." Not always colorless. One lot gave more than opalescence with four parts of 70 per cent Alcohol. Optical rotation —25.7° to —27.4°, Sp. gr. 0.9018 to 0.9045, Menthyl Acetate 7.08 to 7.86 per cent. Total menthol 55 to 60.3 per cent. E. L. PATCH.

OIL PINE NEEDLES. The market shows now few products which were described in the publications of ten years ago, and the name Pinus sylvestris is more misused than any other. There is practically no Oil of Pinus sylvestris on the market. The name is generally applied to such oils as the Siberian and Austrian oils. The Austrian oil is also sometimes known as Oil of Pinus pumilio. AM. DRUGGIST.

OIL RED THYME FLOWERS. Guaranteed to be genuine. Sp. gr. 0.888 (U. S. P. 0.9 to 0.930). Optical rotation —1.2° (U. S. P. up to 3°). Phenols 22.5 per cent. E. L. PATCH.

OIL SASSAFRAS—

Sp. gr.	Opt. Rotation	Refractometer
1.0672	+2.8°	
1.075	+2.70°	1.5315(20°C.)
1.071	+2.30°	1.5302(23°C.)
1.0654	+2.5°	1.5262(22°C.)
1.0574	+3.3°	1.5234(23°C.)

Last shipment returned, dealer's explanation:

"An inexperienced man overlooked the fact that Oil Sassafras solidifies in cold weather and drew from the top of a container, the contents of which were not thoroughly melted and mixed." E. L. PATCH.

PAW PAW. Paw paw preparations vary greatly in digestive activity. W. L. SCOVILLE.

PAPAIN—

Dry Beef Fibrin digested:

Neut. Sol. 21.8	Alk. Sol. 25.5
Neut. Sol. 8.6	Alk. Sol. 19.45
Neut. Sol. 21.6	Alk. Sol. 23.9
Neut. Sol. 13.5	Alk. Sol. 16.9
Neut. Sol. 12.	Alk. Sol. 17.6
Neut. Sol. 12.	Alk. Sol. 14.5
Neut. Sol. 10.3	Alk. Sol. 14.8
Neut. Sol. 19.5	Alk. Sol. 24.2

"Juice of Pawpaw":

Neut. Sol. 16.5 Alk. Sol. 20.

E. L. PATCH.

PEPSIN. Samples on the market with digestive power of 1-9000, but they contain a large proportion of inorganic salts. Probably these salts are a large factor in the activity of the pepsin. W. L. SCOVILLE. Three lots labeled 1-6000 were 1-2000. One lot labeled 1-3000 was 1-1000. Several other lots were weaker than labeled. O. P. D. REPORTER.

PEROXIDE CREAMS. Of twenty-one brands only three contained hydrogen dioxide and in a majority of cases apparently no dioxide had ever been present. AM. DRUGGIST. The Peroxide Specialty Co., Cincinnati, were convicted and fined for shipping such a product. PHARM. ERA.

PETROLATUM WHITE. Sold under guarantee as U. S. P. All free from fats.

Color white, odorless, fusing point 30°C., character, fairly transparent; white, odorless, 34° to 35°C., fairly transparent; white, odorless, 38°, more translucent; white, odorless, 35°, fairly transparent; white, odorless, 42°, more translucent; bluish white, odorless, 36°, translucent; white, odorless, 38°, opaque. E. L. PATCH.

PETROLATUM LIQUIDUM. It is difficult to obtain meeting the U. S. P. requirements for sp. gr. of 0.870 to 0.940. A few lots run as follows: 0.860, 0.875, 0.876, 0.877, 0.861, 0.877. E. L. PATCH.

PHENACETIN. Melts at 131° to 135° C. W. L. SCOVILLE.

PILLS CATHARTIC COMPOUND. These and other black pills labeled gelatin coated were coated with lamp-black and glucose. Pills Cathartic Compound are being offered at wholesale below the bare cost of material. N. A. R. D. NOTES.

PINKROOT. Fifty-seven samples were obtained from various sections of the country and carefully examined, compared with four plants of true spigelia from the Bureau of Plant industry, cross sections of the rhizomes and roots being made and compared microscopically. Specimens found to be true pinkroot, none, although many were up to the U. S. P. description. C. E. SANDERS.

PODOPHYLLIN. Alcohol insol.	Ash
1.5	0.5
1.2	0.5
1.	0.5
1.	0.4
3.7	———
0.8	0.5
1.2	0.5
11.8	———
3.1	1.0

E. L. PATCH.

POTASSIUM CARBONATE. Usually contains 8 to 15% of water. Since the pharmacopœia directs that it is to be dried before being weighed for titration, salt containing as much as 15% of water is sold as U. S. P. W. L. SCOVILLE. 1 lot 0.7% Chloride—98% K_2CO_3 in well dried salt. Dirty. Makes dirty solution. No. 2 do. No. 3, 98.5% dirty. E. L. PATCH.

POTASSA—HIGHEST PURITY. Potassium Hydroxide runs 85% to 89 or 90% strength. W. L. SCOVILLE.

POTASSIUM NITRATE U. S. P. Conviction and fine for shipping ten bbls. containing 7% Sodium Chloride. U. S. P. should be 99% pure. APOTHECARY.

PRECIPITATED FERROUS PHOSPHATE. Dispensatory states that it may assay 44% ferrous phosphate. Five lots carefully made assayed 63.5%, 65.95%, 69.74%, 71%, 80.34%, 86.8%. Other lots in market, 42.34%, 45%, 49.98%, 44% $Fe_3(PO_4)_2$, $8H_2O$. E. L. PATCH.

RHUBARB. American rhubarb has been offered to the trade. The root is of a poor, grayish color, very spongy and with little if any of the characteristic rhubarb odor. Microscopically its structure is similar to the imported but it is distinguished by the small amount of Calcium oxalate crystals present. The powder is of a fair color. E. H. GANE.

SAFFRON—VALENCIA. Five years ago it was almost impossible to encounter an importation of this drug which was genuine and of proper quality. Numerous substances other than Saffron were doctored up so as to resemble it. Petals and stamens of saffron flowers were included with the stigmas, frequently to the extent of 25% or more. Genuine saffron was coated and weighted with heavy adulterants, or was soaked in oil to increase its weight. An excessive amount of moisture was frequently present. In view of the very great value of this article commercially, the money loss entailed in these ways in the course of the year reached an enormous figure. It is safe to say that at the present time it is as rare an occurrence to see an importation of saffron that is defective in any way as it used to be to see a perfect one. I think the money saving in this one article alone will more than pay the entire costs of the enforcement of the Pure Food and Drug Law at the Port of New York. H. H. RUSBY.

SALVIA. It is apparent that much of the "Sage" that is imported, especially around Thanksgiving time, consists of the Salvia Triloba and other very similar species. These all have an odor and flavor closely resembling those of the official article though differing considerably in strength. It may be that they are mere varieties of Salvia officinalis and might properly be officially included with it. Nevertheless, the question should be thoroughly studied and the proper status of these substitutes be definitely fixed. H. H. RUSBY.

SCAMMONY. One sample offered only contained 28.6% resin and was largely adulterated with wheat flour. E. H. GANE. It has been boldly claimed, by those who ought to know better, that practically all the scammony on the market is extracted from the dried root of the false or Mexican scammony. While it is true that most of the scammony on the market, perhaps one should say practically all of it, violates the U. S. P. requirements in having been extracted from the dried instead of the living root of Scammony, the amount of that coming from Mexican scammony, although large, does not predominate. H. H. RUSBY.

SENNA. The sale of broken senna as "Senna U. S. P." has been very properly authorized by the government, but that of senna siftings, containing large amounts of sand and other foreign matter, has caused great trouble. Here again the efforts of the Federal Government are doubtless neutralized in most cases by the neglect of the states to carry out the taboo. H. H. RUSBY.

SILVER NITRATE AMPULS. Material-celluloid. Claim 1% solution-permanent-convenient. Used for dropping in eyes of new-born babies. 12-10-1910—Assayed 1¼%. No trace of oxidation. Walls of ampuls average 1-200 inch in thickness. Solution may have grown stronger by evaporation.

	Five ampuls weighed	2.457 Gm.
1-11-1911	Five " "	2.080 "
	Loss in one month	.377

About .075 G. for each ampul. No oxidation. Strength of solution 1.85%.

2-17-1911	5 ampuls weighed	1.595 G.
	Loss since 1-11-1911	.485 G

About .097 G. for each ampul. Some show marked reduction. Solution from all five ampuls, mixed, assayed 2.76%. As a two percent solution is dangerous this solution of 2.76% should not be used. E. L. PATCH.

SOAP. Soap Castile. The powdered contains 2.5 to 5% of water. The cake 11 to 26%. Much offered as castile soap is made from animal fats. W. L. SCOVILLE. Much of the so-called "Pure Olive Oil Soap" contains a large proportion of cocoanut oil soap. This is easily recognized by the characteristic taste. E. H. GANE.

SODA—CAUSTIC. Runs from 88% to 98.6%. W. L. SCOVILLE.

SODIUM CARBONATE. Varies greatly in the amount of water which it contains. W. L. SCOVILLE.

SODIUM GLYCEROPHOSPHATE. Is often alkaline in reaction to a very marked extent. Enough to give trouble in preparations containing it. W. L. SCOVILLE.

SODIUM PHOSPHATE. Dried, Purified No. 1. Contained 10% sulphate, 1.5% water. U. S. P. No. 2. Contained excess of sulphate and chloride. 0.5 water. E. L. PATCH.

SODIUM SULPHATE. Dried. Tests satisfactory—nearly anhydrous. E. L. PATCH.

SODIUM SULPHITE. Dried.

No. 1 100 parts=188 crystalline—tests O. K.
No. 2 100 parts=189 crystalline—tests O. K.
No. 3 Tests 99% 0.26 chloride—No. 4—98%—0.38 chloride.
No. 5 Too dirty to use. E. L. PATCH.

STRAMONIUM. Two lots of domestic assayed 0.17 and 0.14% alkaloids. E. H. GANE. 0.198%, 0.21%, 0.41%, 0.28%. E. L. PATCH.

TRAGACANTH. Has been a bone of fierce contention during the year; two fraudulent practices, which must be separately discussed, having been commonly indulged in, namely, the sale of India gum in place of or mixed with Tragacanth, and the sale of a grade of Tragacanth which does not meet the official standard. India gum is any gum, of either an Acacia or Tragacanth type, collected in India. The varieties are numerous and of very variable character. All of the Tragacanth type are more or less dark colored with adhering fragments of bark. All are deficient in adhesiveness and other properties of Tragacanth, one having no adhesive power whatever. They are very cheap and their substitution has been a very highly profitable form of fraud. All possess important uses in the arts, and their exclusion, when truly named, is entirely unjustifiable. All too, may lose their true names and go into use as Tragacanth, the states paying not the slightest attention to the fraud. The description of the pharmacopœia is ample to distinguish the article in the entire state, but useless when it is powdered. Since the law says that articles must conform to the standards of the pharmacopœia as determined by the tests laid down therein, an opportunity exists for sub-

stitution, even though tests not included in the pharmacopœia may be conclusive, as in fact they are. In the Federal District of New York the procedure of the courts has mostly been such as to result in the high encouragement of the violators of the Food and Drugs Act. Although there have been some commendable exceptions, there has also been much seen of the evil of false testimony of experts. In one case the importer admitted to the Federal authorities that his Tragacanth contained a large admixture of India gum, but afterwards decided to contest the case. He had not the slightest difficulty in finding experts willing to swear that they had applied the tests and found the article pure. The tests then being applied in court, one of the witnesses who was present refrained from looking on, explaining after the trial that he might be compelled to testify to what he saw if he looked at the tests, which would invalidate his previous testimony. There is a manifest serious weakness in the law that makes no provision for the evidence of tests discovered in the intervals between the publications of the pharmacopœia. Moreover, now that the pharmacopœia is the legal standard, it must be far more careful of both the accuracy and sufficiency of its tests than it has heretofore been. Concerning the supply of a lower grade of genuine Tragacanth than the pharmacopœia specifies I am compelled to express my sympathy with the offenders, except as to the technical matter of violating the law. The restriction of the U. S. P. to a number one Tragacanth (and the same is true of Acacia) would seem to be purely fanciful and uneconomical. A second, third and even fourth grade of these gums, when powdered, can scarcely be distinguished from a number one, certainly not unless a number one sample is placed beside it for comparison. The writer is not convinced that any medicinal or pharmaceutical use for a number one Acacia or Tragacanth cannot be satisfactorily met by one of the other grades mentioned. This opinion, being firmly held by dealers and users makes it extremely difficult to prevent them from substituting such grades and this is certain to be done after powdering, since detection is then impossible. H. H. RUSBY.

TRITICUM. A single shipment of a grass rhizome somewhat resembling Triticum, but totally distinct therefrom, has been offered and rejected under this name. H. H. RUSBY.

TURPENTINE. Adulterated with copal. Several severe inflammations of the hands and face have resulted. To identify the copal the liquid is distilled up to 190° C. and the acid and bromine members of the residue determined. PHARM. ERA.

UMBELIFEROUS CREMOCARPS. Caraway, Anise, Fennel, etc., etc. This class of official fruits is extremely liable to contamination with large amounts of stems, gravel, sand, dust, weed seeds and other impurities, but the indications of quality thus resulting are very deceptive. Sometimes the appearance of foreign tissue will be such as to give the impression of an article of very low grade, yet separation of the light chaff and stem fragments will show the percentage of the latter to be insignificant, while at other times a very fair looking article will be found to contain a serious admixture of heavy and perhaps inert impurities. H. H. RUSBY.

UVA URSI. The production of cut stems to this drug in the same way as described in connection with Long Buchu, seems to have nearly ceased, a result apparently of the persistent rejection of the article when so treated. H. H. RUSBY.

ZINC OXIDE. Difficult to obtain strictly U. S. P. The usual impurities are lead, antimony and iron in excess. Seven lots offered as U. S. P. assayed 96.4%, 98.14%, 99.09%, 96.1%, 95.8%, 97.2% and 95.3% Zinc. E. H. GANE.

For the Committee:

EDGAR L. PATCH.
E. H. GANE.
H. H. RUSBY.
W. L. SCOVILLE.

Pharmaceutical Formulas

PROPOSED FOR A. PH. A. RECIPE BOOK.

(Continued from page 368)

The first two formulas belong to the lubricating jellies submitted in the April JOURNAL A. PH. A.

The other formulas are for preparations of "scarlet red" in the form of ointments and dusting powders. As these preparations are frequently ordered by physicians the writer deemed it advisable to include various formulas given by authorities for the enlightenment of the pharmacists and their physician friends.

The members are requested to submit formulas and also send comments on those already published.

Respectfully submitted,
OTTO RAUBENHEIMER, Chairman.

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ABBREVIATIONS

used in Department of *Pharmaceutical Formulas,* and in Department of *Synonyms.*

Am. Dis.—American Dispensatory.
Anvers—Formulaire de la Société de Pharmacie d'Anvers.
Aust. Pharmacopœa Austriaca.
Belg.—Pharmacopœa Belgica.
B P.—British Pharmacopœia.

B. P. C.—British Pharmaceutical Codex.
Buch.—Buchheister's Vorschriftenbuch.
Can.—Canadian Formulary.
Codex—Codex Française.
D. A-B—Deutsches Arzneibuch.
D. M.—Dieterich's Manual.
Dorv.—Dorvault L'Officiene.
D. Ap. V.—Deutscher Apotheker Verein.
Dresd. Ap. V.—Dresdener Apotheker Verein.
Hess. Ap. V.—Hessischer Apotheker Verein.
Lux. Ap. V.—Luxemburg Apotheker Verein.
Munch. Ap. V.—Münchener Apotheker Verein.
E. B.—Ergänzungsbuch.
F. B.—Formulæ Magistrales Berolinenses.
F. P. F.—Formulaire des Pharmaciens Français.
Hag.—Hager's Pharmazeutische Praxis.
Hag. E.—Hager's Ergänzungsband.
Hell—Hell's Manual.
Helv.—Pharmacopœa Helvetica.
Ital.—Farmacopea Italiana.
Mar.—Martindale Extra Pharmacopœia.
Med.—Medicamenta (Milano).
N. Dis.—National Dispensatory.
N. F.—National Formulary.
Orosi—Farmacologia Italiana.
P. I.—Præscriptiones Internationales.
Ph. F.—Pharmaceutical Formulas (London).
P. J. F.—Pharmaceutical Journal Formulary.
Proc.—Proceedings A. Ph. A.
U. S. Dis.—U. S. Dispensatory.
U. S. P.—U. S. Pharmacopœia.

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Formulas No. 1 to 22 are found in February JOURNAL, p. 169-173.

Formulas No. 23 to 30 are found in April JOURNAL, p. 366-368.

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No. 31.

CHONDRUS LUBRICATING JELLY.

Department of Health, N. Y. City.

Solution of Formaldehyde....	80 minims
Boric Acid.....	16 oz. av.
Irish Moss.....	12 oz. av.
Distilled Water, a sufficient quantity	
To make	5 Gall.

Wash the cut Irish Moss, put it together with the Boric Acid in about 4 gallons of Distilled Water on a water bath and boil for about 3 hours. When cool decant from the sediment and add the Solution of Formaldehyde and sufficient Distilled Water.

Submitted by Dr. M. Hirschman, chemist of drug laboratory, Willard Parker Hospital.

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No. 32.

CHONDRUS LUBRICANT.

In the opinion of the Chairman the official *Mucilago Chondri N. F.*, together with antiseptics and perhaps a little glycerin, will produce an excellent lubricating jelly. Experiments along these lines are invited and comments are requested.

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"SCARLET RED" FORMULAS.

Scarlet red, or "Scharlach Rot," was originally used as an aniline dye and also as a microscopical stain. In 1906, B. Fischer (Münch. Med. Wochschr.) found that it also exercises a favorable action on the growth of epithelium, and a number of other investigators have since confirmed his results and also found other applications and uses for the dye.

In ordering "scarlet red" care must be used to specify the "medicinal" kind, which chemically is "amidoazotoluol-azobetanaphthol" and which has a different constitution than the regular aniline dye "scarlet red." Medicinal scarlet red is a dark brownish-red bulky powder with a melting point of 185° C., insoluble in water, slightly soluble in cold alcohol, acetone, ether and benzol, but soluble upon boiling. It is soluble in chloroform (1 : 15), also soluble in fixed oils and fats, but not readily soluble in petrolatum or paraffin.

Scarlet red is generally applied in the form of an 8 percent ointment. As various authorities have recommended different vehicles, the following formulas are submitted for

No. 33.

OINTMENT OF SCARLET RED. KRAJCA'S FORMULA.

Scarlet Red	8 gm.
Chloroform Oil, a sufficient quantity,	
Yellow Petrolatum, a sufficient quantity	
To make	100 gm.

Triturate the Scarlet Red with sufficient Chloroform Oil (see Formula No. 41) until very finely suspended and until the Chloroform is evaporated and then incorporate with the Petrolatum.

No. 34.

McDONAGH'S FORMULA.

Dissolve the Scarlet Red in Chloroform and Mix it with the Petrolatum.

Lancet.

(As 15 parts of Chloroform are required to dissolve 1 part of Scarlet Red and as undoubtedly the Chloroform has to be evaporated, although this is not stated, therefore this seems a wasteful process.—O. R.)

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No. 35.

REINHARDT'S FORMULA.

He claims that it is unnecessary to use Chloroform or Chloroform Oil, as an excellent ointment can be obtained by triturating the Scarlet Red with the Petrolatum, previously warmed.

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No. 36.

BRUHN'S FORMULA.

Scarlet Red	5 to 10 gm.
Lanolin (No. 3)	
Paraffin Ointment (No. 6), equal parts of each	
To make	100 gm.

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No. 37.

FORMULA OF GERMAN HOSPITAL.

Philadelphia, Pa.

Scarlet Red	8 gm.
Castor Oil	10 gm.
Petrolatum, a sufficient quantity	
To make	100 gm.

Submitted by J. K. Thum.

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UNG AMIDOAZOTOLUOLIS CUM ZINCI OXIDO.

Ointment of Scarlet Red with Zinc Oxide.

German Hospital Philadelphia.

Scarlet Red	8 gm.
Castor Oil	10 gm.
Ointment of Zinc Oxide, a sufficient quantity	
To make	100 gm.

Submitted by J. K. Thum.

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No. 38.

APPLICATION OF SCARLET RED OINTMENT.

When applied to ulcers the ointment may be spread on gauze and covered by a bandage, the skin around the ulcer being covered with ointment of Zinc Oxide to avoid irritation. The dressing should not remain longer than 24 hours, the wound then being carefully cleaned before a fresh application. Should irritation occur, then a dressing of boric acid ointment should be substituted for 1 or 2 days, after which a weaker ointment of Scarlet Red may be applied.

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SCARLET RED DUSTING POWDER.

In place of the Ointment which frequently produces irritation and eczema, some authorities have recommended "dusting powders," also called

Pulvis Adustum, or
Pulvis Inspersorius
cum Amidoazotoluolo.

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No. 39.

FORMULA OF VITTORIO PAVIA.

Scarlet Red	10 gm.
Boric Acid, in very fine powder	90 gm
To make	100 gm.

Therap. d. Gegenw., 1911, p. 47.

No. 40.

FORMULA OF PAUL MICHAELIS

Scarlet Red	10 gm.
Zinc Peroxide	20 gm.
Bismuth Subnitrate	70 gm.
To make	100 gm.

Med. Klinik., 1911, p. 139.

It is, of course, absolutely essential that these preparations are well mixed and sifted, in an extremely fine powder, free from gritty particles. They are best applied by means of an insufflator.

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No. 41.

OLEUM CHLOROFORMI.

Chloroform Oil—Chloroformöl.

D. A.-B. V.

Chloroform	1 part
Peanut Oil	1 part

Chloroform Oil is clear, yellow and has the odor of chloroform. When heated in a shallow porcelain evaporating dish on a water-bath for half an hour it loses one-half its weight.

Editorial Notes and Announcements

Committee on Publication:

JOS. W. ENGLAND, *Chairman*, Philadelphia, Pa.
GEO. M. BERINGER.....Camden, N. J
F. W. MEISSNER.....La Porte, Indiana
JOS. L. LEMBERGER.....Lebanon Pa.
FREDERICK J. WULLING...Minneapolis, Minn.
Ex-Officio: THE EDITOR, ASSOCIATE EDITORS AND TREASURER.
JAMES H. BEAL, Editor.....Scio, O.
C. LEWIS DIEHL.....Louisville, Ky.
Associate Editor and Reporter on the Progress of Pharmacy.

All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Requests for back numbers, and claims for missing numbers should be sent to the Editor.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue.

In giving change of address, always give both the old and the new address.

RULES OF CENSORSHIP.

1. All contracts for advertising are accepted subject to revocation at the discretion of the Publication Committee.

2. No advertisement will be accepted for any article or service, the sale or furnishing of which is illegal in the state of publication or in any state in which the JOURNAL circulates.

3. Advertisements will not be accepted for articles belonging to the class of preparations commonly known as patent medicines, nor for any medicinal preparation advertised directly to the laity, or which is advertised in such a manner as to encourage self medication.

4. Copy which is vulgarly or extravagantly worded, or which makes extravagant claims of therapeutic virtues will not be accepted.

5. No advertisement will be accepted which by intent or inference would result in deceiving, defrauding or misleading the reader.

REPRINTS.

The Stoneman Press Co., Columbus, O., will furnish reprints of papers appearing in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION at the prices named below, when the order is received before the type has been distributed:

50 copies, 4 pages, no cover, $2.25, with cover, $4.00.
100 copies, 4 pages, no cover, $2.50, with cover, $4.50.
200 copies, 4 pages, no cover, $3.00, with cover, $5.50.
50 copies, 8 pages, no cover, $2.75, with cover, $4.50.
100 copies, 8 pages, no cover, $3.50, with cover, $5.00.
200 copies, 8 pages, no cover, $4.50, with cover, $6.50.
50 copies, 12 or 16 pages, no cover, $4.00, with cover, $5.50.
100 copies, 12 or 16 pages, no cover, $5.00, with cover, $6.50.
200 copies, 12 or 16 pages, no cover, $6.50, with cover, $8.00.

Orders for reprints may be sent either to the Editor, or to the Stoneman Press Co.

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FREE WHILE THEY LAST.

As long as the supply lasts, complete sets of the Bulletin, 6 vols. (except Jan., 1910,) will be supplied to dues paid members who request them.

These on binding, which should cost not to exceed 60 cents per volume, will form a handsome and valuable addition to any pharmaceutical library. In the future complete sets of the Bulletin will be scarce and valuable, and those who want them should apply now.

Members will be expected to pay freight or express, which, however, will be only a small amount.

The General Secretary is also prepared to send dues paid members, without charge, reprints of Dr. S. S. Cohen's address on the *Relation of the Pharmacopoeia to the Practice of Medicine*, an admirable aid in propaganda work with physicians.

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THE SIXTIETH ANNUAL CONVENTION.

It was expected that this number of the JOURNAL would contain more or less information concerning itinerary and rates to Denver

from the eastern cities, but up to the time of going to press copy for this had not come to hand. Enough is known, however, to say that the Denver people are hard at work in the endeavor to make the meeting one of the most successful ever held in that city.

The date, August 19, is at the season when a trip to the mountains is most delightful, and the time when druggists can most easily leave their stores.

Don't fail to set aside this date now, and to keep it free from all interfering engagements.

It will be a grand opportunity for a visit to the "Heart of the Rockies."

WHY PHYSICIANS SHOULD PRESCRIBE U. S. P. AND N. F. PREPARATIONS.

At the "joint" meeting of the New York Branch of the A. Ph. A., the Brooklyn Pharmaceutical Association and physicians of Brooklyn, held on March 25, 1912, Otto Raubenheimer gave the following arguments:

"Inasmuch as the N. F., an authoritive book of standard preparations, legalized by the Pure Food and Drugs Act, is published by the A. Ph. A., the professional association of pharmacists in the United States, and is prepared by experts who, unselfishly, not only compile the formulas but also improve the preparations so as to be of the highest type, both pharmaceutically and therapeutically.

"And inasmuch as the U. S. P., the legal standard in all the states, is carefully and scientifically revised by a committee, composed of physicians, pharmacists and chemists, elected by the Convention and which committee performs this very important work practically without any compensation.

"Therefore, it is but reasonable to expect that physicians should show their appreciation by prescribing the standard, legal and official preparations of the U. S. P. and N. F. in preference to proprietory preparations which are secret or semi-secret and which are frequently changed at the will of their owners."

DR WILEY'S PROBABLE SUCCESSOR.

The size and quality of a man is sometimes better appreciated when it becomes necessary to fill his place than before he vacated it, an illustration of which is seen in the canvass for a suitable successor to Dr. H. W. Wiley as Chief of the Bureau of Chemistry.

One of the first names proposed was that of Prof. Frederick J. Wulling, well known to the drug trade owing to his office as Dean of the School of Pharmacy of the University of Minnesota. Prof. Wulling is not only a pharmaceutical chemist of ability, but has the added advantage of being a graduate in law, and these with his other personal qualities splendidly equip him for the proposed position.

Another pharmacist who has been prominently mentioned is Prof. Eugene G. Eberle, Dean of the School of Pharmacy at Dallas, Tex., and Editor of the *Southern Pharmaceutical Journal*. He was President of the A. Ph. A. last year, and has always been active in the advocacy of effective food and drug laws, and of laws restricting the traffic in habit-forming drugs. Prof. Eberle is a man of safe and sane, yet of progressive type, and would make an excellent official.

Among the non-pharmacist candidates several excellent possibilities have been presented.

One of these is H. E. Barnard, B. S., Food and Drug Commissioner of Indiana, who is said to be a favorite with the druggists of that state on account of his activity in the Indiana State Pharmaceutical Association, and in other ways. His ability as a food and drug chemist, and his zeal for a rigid enforcement of the food and drug laws are beyond question.

Another state official who has been strongly endorsed is Prof. E. F. Ladd, Food Commissioner of North Dakota, who has been the terror of the food and drug sophisticators of that state. He is well known among food and drug chemists because of his excellent work in establishing analytical standards for various products, and as the author of numerous valuable and practical papers relating to food and drug chemistry.

Dr. R. E. Doolittle, of the present Board of Food and Drug Inspection, also prominent among those mentioned, has the advantage of having behind him the experience of several years in the administration of the Federal law, and of the internal workings of the Bureau of Chemistry, and would consequently be able to assume the vacant position without occasioning a halt in the work of the Bureau. Those who know Dr. Doolittle per-

sonally speak highly of his character and capacity.

Another whose name has been strongly urged is W. D. Bigelow, Chief of the Division of Foods of the Bureau of Chemistry. Dr. Bigelow stands second to none in his branch of chemistry, is a man of clean, strong character, and in earnest sympathy with an honest and impartial enforcement of the law. His appointment would be well received by the drug trade generally.

Other candidates have been proposed from various states, all of them apparently worthy and well qualified, though the writer is not sufficiently acquainted with them or with their respective merits to make personal mention of each.

It would, of course, be mere affectation for the Editor of the JOURNAL to pretend ignorance of the fact that his name has been mentioned in the list of "favorite sons," but he takes this opportunity to say that this mention has been without his connivance, contrivance, aid or sympathy. He is not conscious of any internal yearning to occupy the chair now vacant, and while grateful to the friends who have thought of him in this connection, trusts that they will support one or another of the several excellent gentlemen named above.

Communications and Correspondence

All communications must be signed by their Authors

BULLETIN NO. 1 OF THE COMMITTEE ON COMMERCIAL INTERESTS.

The Commercial Section of our grand Association is by no means the one of least importance and the splendid work accomplished by the predecessors of this Committee has borne good fruit.

It is the desire of this Committee to make the meetings of this section at our meeting in Denver of unusual interest and of lasting benefit to the membership of our Association and with this in view, we hereby solicit papers and information pertaining to the Commercial Interests of the Pharmacist. With a view to stimulating and inspiring members of the A. Ph. A. to greater efforts, the Chairman of this Section offers a first and second prize—consisting each of a box of Havanas—to be awarded to the member of our Association who sends in the first paper, and the second prize to the one sending in the fifth paper. The prizes will be awarded at our Denver meeting. Mail papers direct to the Secretary, who will act as judge.

Looking forward to a splendid lot of papers, we remain,

Fraternally yours,

E. BERGER, Chairman.

D. W. RAMSAUR, Secretary.

Palatka, Fla.

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COMMITTEE ON PRACTICAL PHARMACY AND DISPENSING.

(Bulletin No. 2)

The votaries of pharmacy in large numbers will convene in the city of Denver in August, and the local committee has already given us assurance of a most royal entertainment. The meeting, however, to be wholly successful must depend chiefly on the individual contributions of its members—on the quality and quantity of the papers presented for discussion at its sessions.

Heretofore, of the entire membership of the Association only about one per cent. have favored us with papers. Surely some among the ninety and nine per cent. of delinquents can furnish some data or an original contribution on some topic germane to the science or art of pharmacy for this occasion. Particularly do we invite our friends in the Government service—who have recently recruited in large numbers to our ranks—to give us the benefit of some of their experiences in the preparation and manufacture of pharmaceutical products and galenicals.

The general excellence and high character of the contributions to pharmacy of our fellow-workers in the past have gone a long way toward establishing the fame and prestige of our worthy association. Let each one therefore who has her continued welfare at heart lend a hand in this unselfish work for the uplifting and advancement of the profession in which we as co-workers are engaged.

Fraternally yours,

P. HENRY UTECH, Chairman.

J. LEON LASCOFF, Secretary.

SUGGESTION CONCERNING COMPOUND SOLUTION OF CRESOL.

CHICAGO, ILL., April 18, 1912.

Editor of the JOURNAL:

Some time ago I made a recommendation through Prof. Clark to the Revision Committee of the Pharmacopœia for a change in the mode of making Liquor Cresolis Co.—a change which I believe to be important to the retail drug trade, as it simplifies the process of making the above preparation; it is, to use equal parts by weight of Cresol and Sapo Mollis.

By this method one is sure of perfect saponification, and therefore clear solutions thereafter, when dilutions are made. Whereas, by the present process this is not always the case, owing perhaps to variation in quality of oil used, and to the degree of freshness or mode of keeping. Many pharmacists will not bother with the present method who would be glad to avail themselves of the above formulas. Yours sincerely,

WM. GRAY, Pharmacist.

Council Business

COUNCIL LETTER NO. 16.

PHILADELPHIA, March 27, 1912.

Members of the Council:

Chairman Eberle, acting under *Motion No.* 31 (*C. L. No.* 14, 31), has appointed the following "Committee on Co-operation in Pharmaceutical Legislation"

W. S. Richardson, Chairman, H. P. Hynson and J. H. Beal.

Motion No. 32 (*Appropriation of* $100 *to Committee on National Legislation*) has received a majority of affirmative votes.

No hearing has yet been held by the Committee on Interstate and Foreign Commerce upon the subject of the Richardson Amendment to Sections Nos. 6, 7 and 8 of the Food and Drugs Act. (H. R. 14060.)

Motion No. 33 (*Donation of Set of Proceedings of A. Ph. A. to N. A. R. D.*). Moved by J. H. Beal, seconded by H. M. Whelpley, that the Association present a set of its Proceedings, as nearly complete as can be made from stock in hand, to the National Association of Retail Druggists.

Motion No. 34 (*Election of Members*). You are requested to vote on the following applications for membership

No. 164. Leon H. Marr, 62 Main St., Farmington, Maine, rec. by Chas. H. Davis and W. F. Jackson.

No. 165. Carl B. Kober, 37 Logan St., Denver, Col., rec. by F. W. Nitardy and John A. Martin.

No. 166. Benjamin Franklin Seymour, 60 Jacobson Bldg., Denver, Colo., rec. by F. W. Nitardy and John A. Martin.

No. 167. Robert James Douglass, Sergeant Hospital Corps, U. S. A., Camp Jossman, Guimaras, P. I., rec. by Samuel J. Harris and J. H. Beal.

No. 168. James Baillie, 1887 Rondo St., St. Paul, Minn., rec. by W. A. Frost and Frederick J. Wulling.

No. 169. Justin Sewall Brewer, care Minneapolis Drug Co., Minneapolis, Minn., rec. by W. A. Frost and Frederick J. Wulling.

No. 170. Thomas Biscoe, St. Paul Park, Minn., rec. by W. A. Frost and Frederick J. Wulling.

No. 171. William Loesch, 3040 Wentworth Ave., Chicago, Ill., rec. by Wm. B. Day and A. H. Clark.

No. 172. William H. Thomas, Sergt. 1st Class, H. C., Regan Barracks, Ahoy, P. I., rec. by Jasper M. Lawrence and Wm. B. Day.

No. 173. Emmett Powers, 2809 Eaton St., Edgewater, Col., rec. by F. W. Nitardy and John A. Martin.

No. 174. Francisco Remirez, 498 Jesus del Monte, Havana, Cuba, rec. by Jose Guillermo Diaz and Jose P. Alacan.

No. 175. Albert Logan Herbster, 229 National St., Elgin, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 176. William Kerr Lyda, Sergeant 1st Class, H. C., U. S. A., Fort Gibbon, Alaska, rec. by Wm. B. Day and Elmo D. Mathews.

No. 177. Matt Robert Noreen, Sergeant, H. C., U. S. A., Fort Gibbon, Tanana, Alaska, rec. by Elmo D. Mathews and Wm. B. Day.

No. 178. Herbert W. Snow, 220 N. Franklin St., Chicago, Ill., rec. by Jas. H. Wells and C. H. Avery.

No. 179. Clifford H. Bollinger, care Noyes Brothers & Cutler, Saint Paul, Minn., rec. by W. A. Frost and F. A. Upsher Smith.

No. 180. Glenn D. Thomas, Greenfield, Iowa, rec. by Wm. Mittelbach and C. E. Zinn.

No. 181. William Henry McNeill, River and Straight Sts., Paterson, N. J., rec. by J. H. Beal and W. Pitt Rich.

No. 182. Charles Samuel Cook, Bolivar, Tenn., rec. by Wm. R. White and J. O. Burge.

No. 183. Joy L. Miller, 340 Downey Ave., Indianapolis, Ind., rec. by Frank A. Hereth and A. D. Thorburn.

No. 184. Hiram Carney Parker, Sergeant Hospital Corps, U. S. A., Camp Jossman, Guimaras, P. I., rec. by Samuel J. Harris and George H. Paul.

No. 185. Heber Wilkinson Youngken, 6106 Gray Ave., West Philadelphia, Pa., rec. by Christopher Koch and I. V. Stanley Stanislaus.

No. 186. Fred Louis Carter, Jr., 20 Merri-

mac St., Boston, Mass., rec. by John G. Godding and C. Herbert Packard.

No. 187. Aaron Gard Burnette, 326 Missouri Ave., East St. Louis, Ill., rec. by J. W. Mackelden and H. M. Whelpley.

No. 188. William Hamilton Lamont, 11 S. 4th St., care Eli Lilly & Co., St. Louis, Mo., rec. by J. H. Beal and H. M. Whelpley.

No. 189. Charles S. Gutzeit, 630 Tasker St., Philadelphia, Pa., rec. by John R. Minehart and Ambrose Hunsberger.

No. 190. Arthur Charles Schulte, 300 S. Jefferson Ave., St. Louis, Mo., rec. by J. H. Beal and H. M. Whelpley.

No. 191. Marcus Barrett, 233 St. Luke St., Chicago, Ill., rec. by W. B. Day and E. N. Gathercoal.

No. 192. Benjamin Roessner, 509 N. 2d St., Philadelphia, Pa., rec. by E. Fullerton Cook and I. W. Osterlund.

No. 193. William Nicholas Robak, Main and First Sts., Conemaugh, Pa., rec. by J. A. Koch and A. F. Judd.

No. 194. Henry P. Sandkoetter, 50 W. Harrison St., Chicago, Ill., rec. by W. B. Day and E. N. Gathercoal.

J. W. ENGLAND,
Secretary of the Council.

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COUNCIL LETTER NO. 17.

PHILADELPHIA, April 9, 1912.

Members of the Council:

Motion No. 33 (*Donation of Set of Proceedings of A. Ph. A. to N. A. R. D.*), and *Motion No.* 34 (*Election of Applicants for Membership from Nos.* 164 *to* 194 *inclusive*) have each received a majority of affirmative votes.

The following communication has been received

"To the Council of the American Pharmaceutical Association:

We, the undersigned members and proposed members of the American Pharmaceutical Association respectfully petition the Council for a permit to establish a local Branch to be known as the Saint Louis Branch of the American Pharmaceutical Association.

At the meeting held on March 22, 1912, a Constitution and By-Laws was adopted, copy of which find attached, and the following officers elected: Wm. K. Ilhardt, President; Jerry A. Wilkerson, First Vice President; Arthur C. Schulte, Second Vice President; William H. Lamont, Secretary; Carl T. Buehler, Treasurer; N. Emery Williams, Louis Lieberstein, Delta E. Combs, Advisory Board: L. G. Blakeslee, S. Boehm, C. T. Buehler, A. G. Burnett, Chas. E. Caspari, G. W. Collins, D. E. Combs, Miss B. P. Coussens, Chas. Gietner, J. M. Good, F. A. Haines, Francis Hemm, Wm. A. Hickey, Mrs. B. G. Huffman, Wm. K. Ilhardt, L. J. Lehmann, Wm. H. Lamont, L. Lieberstein, G. S. Lohmann, J. W. Mackelden, M. J. Noll, F. C. Pauley, J. W. S'Renco, E. A. Sennewald, A. Schulte, C. R. Sizemore, F. W. Sultan, L. R. Suppan, Wm. H. Tabacnic, L. R. Tyson, F. G. Uhlich, John Wasem, H. M. Whelpley, J. A. Wilkerson, N. Emery Williams, Wm. P. Overstreet.

Saint Louis, Missouri, March 25, 1912."

Do you approve of the above application for the formation of the Saint Louis Branch of the American Pharmaceutical Association? This will be known as *Motion No.* 35 (*Application for Formation of the Saint Louis Branch, A. Ph. A.*).

There was submitted, also, a Constitution and By-laws for the Branch, but as this is quite lengthy, it will be published in the JOURNAL.

J. W. ENGLAND,
Secretary of the Council.

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COUNCIL LETTER NO. 18.

PHILADELPHIA, April 13, 1912.

Members of the Council:

The following is submitted:

"PHILADELPHIA, PA., April 13, 1912.

Members of the Council:

Since the Boston (1911) meeting of the American Pharmaceutical Association the new JOURNAL has been issued along the lines laid down by the Association.

The details of publication have been very carefully considered by the Committee on Publication.

The number of reading pages in each issue has been left to the judgment of the Editor. Four issues have been sent out containing 90, 104, 86 and 120 pages, respectively.

The monthly date of publication has been made "about the fifth of each month."

It has been decided not to copyright the JOURNAL, at least for the present, unless exigencies require it.

Advertising rates were adopted by the Committee on Publication and these have been satisfactory to adverisers. It is most pleasing to state that the contracts placed have been much larger than was thought probable at the Boston meeting of the Association. A detailed report on this subject will be made at the Denver (1912) meeting.

Rules of Censorship have been adopted (see JOURNAL A. PH. A.) and a Committee on Censorship of three appointed, consisting of the Editor, the Treasurer and the Chairman of Committee on Publication.

The best and most satisfactory bid for printing the JOURNAL was that of the Stoneman Press Company, of Columbus, Ohio, and the contract for 1912 was awarded to this firm. A full report will be made at the Denver (1912) meeting.

It has been decided to furnish reprints of articles in the JOURNAL to authors at cost.

At the Boston (1911) meeting of the Association the following by-laws were adopted:

CHAPTER VI, ARTICLE IV.

"The Report on the Progress of Pharmacy shall be edited, published and distributed under rules and regulations approved by the

Council. It shall be issued as a yearly volume covering each fiscal year of the Association."

The title of this "yearly volume" has been the subject of considerable discussion by the Committee. It was felt that as the volume was to contain not only the Report on the Progress of Pharmacy, but also additional matter, such as Constitution and By-Laws, Geographical Roll and Alphabetical List of Members, Officers and Committees, General Rules, etc. (as required by Chapter VII, Article IX of By-Laws), the title of Report on the Progress of Pharmacy would be incorrect, and hence it has been decided to call the volume "Year Book of the American Pharmaceutical Association." This can be contracted into "Year Book, A. Ph. A." in contradistinction to "Year Book, B. P. C." (issued by the British Pharmaceutical Conference). It was felt that such a title would be most appropriate. It is true that we have a British "Year Book," but we have also a British Pharmacopœia, and the U. S. P. and B. P. do not conflict.

The title page in the Year Book will state the fact that the volume contains the "Report on the Progress of Pharmacy" and other official data, including "Rules of Finance." The authority for inserting this latter is to be found in Chapter VII, Article X of the By-Laws, under the clause "and such other matter as may be deemed desirable." The Council has the authority to insert any matter it wishes in the annual volume.

It will be recalled by the members of the Council that the Druggists' Circular (C. L. No. 14) requested permission "to publish a commentary on the various formulas contained in the work N. F., somewhat as the authors of the dispensatories have published comments on the text of the Pharmacopœia, and to quote extensively from the book," and this request was referred to the Committee on Publication.

The Committee on Publication feels that any decision upon this request will establish a precedent, and that it will be better to have the question discussed by the Council in actual session at the Denver (1912) meeting, and so recommends.

The details of the publication of the Year Book and the National Formulary have not been considered, because the manuscript for these two volumes has not been completed.

Under date of January 3, 1912, Reporter Diehl wrote that it was impossible to name a date when the manuscript for the annual volume would be ready for the printer, but indicated that it might be ready some time in April, 1912.

With regard to the National Formulary, it is very important that the subject-matter of this book be given the most careful consideration by the members of the Committee on National Formulary. The latter are framing legal standards, and should not call their labors completed until they have thoroughly satisfied themselves that every formula submitted is entirely practicable, and that the book will meet every legal requirement. This means delay, but it is hoped that the work will soon crystallize, and that it will be possible to publish the Year Book and the National Formulary within a reasonable early period.

If any discrimination has to be made, it would seem to be more important that the Year Book be hastened to completion than the National Formulary. A Year Book should be issued somewhere near about the year the date of which it bears. At the least calculation, it will take three months to get it through the press and delivered after the perfect manuscript is received, which will bring the 1911 book out late in 1912.

J. W. ENGLAND,
Chairman of Committee on Publication."

Do you approve above report and recommendations contained therein? This motion will be regarded as *Motion No.* 36 (*Approval of Report of Committee on Publication*).

J. W. ENGLAND,
Secretary of the Council.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that **they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—Resolution adopted at the Boston Convention, 1911.**

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

<>

ST. LOUIS BRANCH.

CONSTITUTION AND BY-LAWS.*

PREAMBLE.

WHEREAS, The American Pharmaceutical Association is engaged in the laudable effort to elevate and refine the practice of Pharmacy and to improve its general conditions, and

WHEREAS, The aim and intent of the American Pharmaceutical Association is to secure and maintain the professional standing of the pharmacist—by encouraging the pharmacist to recognize the real dignity of the profession; by supporting the effort to regulate sound and thorough pharmaceutical education; by favor-

*Adopted at the Organization Meeting held March 22, 1912.

ing the enforcement and obedience of just pharmaceutical legislation; and

WHEREAS, The American Pharmaceutical Association is constantly laboring for the welfare of the individual, through the dissemination of valuable knowledge concerning all branches of Pharmacy—by aiding the passage of desirable legislation and combating that which would be detrimental to the pharmacist or hamper him in the daily pursuit of his profession; by promoting a feeling of mutual professional respect between the pharmacist and the physician, and

WHEREAS, We believe that the general usefulness of the American Pharmaceutical Association may be increased and extended and its scope of influence broadened and made stronger and the consequent benefits of membership made more valuable and productive of greater good by the formation of local branches, therefore, be it

Resolved, That we organize and maintain a Branch of this honorable Association, pledging ourselves to uphold its principles and objects by supporting the Constitution and By-Laws of the Association and to do all in our power to further advance and elevate the Practice of Pharmacy by the adoption of the following Constitution and By-Laws:

CONSTITUTION.

ARTICLE I.

This organization shall be called the Saint Louis Branch of the American Pharmaceutical Association. Abbreviated, St. L. Br. A. Ph. A.

ARTICLE II.

The object of this organization shall be to promote and maintain a local interest in the parent body by studying, observing and applying the principles of organization of the A. Ph. A., by arranging regular meetings for the discussion of such subjects as are of general or vital interest to Pharmacy, by encouraging greater efforts among the pharmacists in the field of research for the development and perfection of improved methods of manufacture.

ARTICLE III.

The membership of this Branch shall consist of Active members and Honorary members.

The names of candidates for Active membership to be presented by the Committee on Membership at any regular meeting.

The Honorary Membership shall be conferred through recommendation of the Committee on Membership.

SECTION 1. Every member of the A. Ph. A. in good standing residing in the City of Saint Louis, Missouri, or its suburbs, is eligible to Active membership with full power to vote upon all questions presented before the Branch Association.

SEC. 2. Every member of the A. Ph. A. in good standing, who is not an Active member, is eligible to Honorary membership with full privilege to attend meetings, and enter into all scientific or commercial discussions, present and read papers and perform experiments for the general edification of the Association and enjoy all privileges with the exception of voting upon questions before the Branch Association or at the annual election.

ARTICLE IV.

The officers of the Saint Louis Branch of the American Pharmaceutical Association shall be a President, two Vice Presidents, a Secretary, a Treasurer, and an Advisory Board, and shall be elected and installed at the regular October meeting.

ARTICLE V.

The President shall preside at all meetings. In his absence or inability to serve, the Vice Presidents in their order shall preside. He shall perform such duties as pertain to the office, and at the annual meeting present a report to the Association covering his administration.

The Secretary shall keep a record of all proceedings of the Association. He shall conduct all correspondence of the Association and at the annual meeting render a report covering his work from the time of the preceding annual meeting.

The Treasurer shall have supervision over all the funds and shall pay all bills when accompanied by vouchers signed by the President and Secretary and shall report the state of the treasury in writing at each annual meeting or whenever called upon to do so by the officers of the Association.

The Advisory Board shall consist of three Active members to be elected to serve one year and three Honorary members to be appointed by the President to serve one year.

ARTICLE VI.

Every proposition to alter, amend or change the Constitution shall be submitted in writing at any regular meeting, and upon receiving the vote of three-fourths of the members present at the next regular meeting shall become part of the Constitution.

BY-LAWS.

ARTICLE I.

The meetings of this Association shall be held in the Saint Louis College of Pharmacy, 2108 Locust street, the third Friday in each month at 8 p. m., from October to May inclusive.

Date and place of meeting subject to change by the President upon the written request of five members.

ARTICLE II.

Seven Active members shall constitute a quorum.

ARTICLE III.

The President shall appoint at the annual meeting or soon thereafter as convenient the following committees, each committee consisting of three Active members of this Association with the President and Secretary as ex-officio members:

A Committee on Membership whose duty it shall be to secure new members.

A Committee on Publicity to furnish news of meetings to the pharmaceutical and public press.

A Committee on Papers whose duty it shall be to encourage papers to be read before the meetings.

A Committee on Manufacture whose duty it shall be to have members perform experiments and produce finished pharmaceutical products before the meetings.

A Committee on Discussions whose duty it shall be to present at each regular meeting papers and items of local and general interest that have appeared in the pharmaceutical and medical journals and daily press.

A Committee on Legislation whose duty it shall be to keep the Association advised and informed of any and all legislation bearing upon any branch of Pharmacy, and shall at the annual meeting show the comparative values of the various State Pharmacy laws.

A Memorial Committee to represent the Association upon the death of a member.

Special Committees may be appointed by the President to perform special duties, the life of said Committee ending with the completion of the assignment.

ARTICLE IV.

Ordinary Parliamentary rules will govern each meeting.

All papers to be read before the Association must be in the hands of the Chairman of the Committee on Papers who must notify the President at least seven days before the date of meeting at which the paper is to be read.

ARTICLE V.

Order of Business.
Regular Meetings.
Roll Call.
Reading the Minutes of the Preceding Meeting.
Application for Membership.
Reports of Committees.
Unfinished Business.
Reading of Papers.
Discussion of Papers.
Adjournment.

ANNUAL MEETING.

ROLL CALL.

Reading of the Minutes of the last Annual and all following Meetings.
President's Address.
Reports of Officers.
Reports of Committees.
Application for Membership.
Unfinished Business.
New Business.
Election of Officers.
Installation of Officers.
Adjournment.

ARTICLE VI.

These By-Laws may be amended or suspended at any regular meeting by an affirmative vote of three-fourths of the Active members present.

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JOINT MEETING OF THE NASHVILLE BRANCH AND THE NASHVILLE ACADEMY OF MEDICINE.

A meeting that it is hoped may bear fruit in the future was held in the assembly room of the Tulane Hotel at 8 p. m. Tuesday, February 27, 1912, between the Nashville Academy of Medicine and the Nashville Branch of the A. Ph. A., it being the date of the regular weekly meeting of the physicians. Arrangements had been made for a joint meeting of the two bodies on this date for the discussion of the proposed formulas for the forthcoming edition of the N. F.

The presiding officer, Dr. L. J. Caldwell, was in the chair. He opened the meeting by stating that we have present with us tonight the Nashville Branch of the A. Ph. A., who desire to call our attention to some of the formulas proposed for admission in the new N. F. and exhibit samples of the same for our comments and criticisms, and as we shall have the "last say" I hope you will not be backward in stating what you think of the proposed additions.

J. O. Burge, President of the Branch, was then introduced and gave a short outline of the history and objects of the Branch. He said in part that the Nashville Branch of the A. Ph. A. was a young organization, in fact

the baby Branch of the old Association, and came into existence less than two years ago. This is our first appearance in the professional world, our debut as it were. That the membership was composed of the most up-to-date pharmacists in the city, numbering about 35. That they were glad to have this opportunity of meeting with the physicians of Nashville and bringing to their attention a subject of so much importance to both professions. That these Branches of the A. Ph. A. were organized for the purpose of the professional and ethical side of pharmacy, and that they were exercising a great influence in raising the standard of pharmacy, by bringing their members together more frequently, when they could compare notes and discuss problems of their business that confront them daily in their daily store practice. That for several meetings past the members of the Branch had been exhibiting samples and discussing the formulas and methods of making the proposed additions to the new N. F., and at the last meeting, February 8th, it was decided that it would be interesting to bring these formulas and samples to the attention of the physicians of Nashville and secure the comments and criticisms on them from the viewpoint of the medical profession, that the same might be forwarded to the committee on revision for their consideration and action and that Dr. E. A. Ruddiman, Vice President of the Branch, had kindly consented to bring to their attention a few of the more important of these preparations.

Dr. E. A. Ruddiman was then presented to the assembly and after giving a brief history of the N. F. in which he stated that three editions of the work had already appeared, the first in 1888. That the fourth was now in the process of revision and would appear some time during this year. That the N. F. was edited, revised and published by the A. Ph. A in this respect differing from the Pharmacopœia, which was revised and published by physicians and pharmacists jointly. That it was intended as an appendix, a stepping stone as it were to the Pharmacopœia to contain formulas for preparations used to a considerable extent throughout the country, but not of sufficient importance for admission into or retention in the Pharmacopœia. That the Pure Food and Drug law having placed the N. F. on the same footing with the U. S. P. it was necessary that as great care be used in revising one as the other.

For some time the Nashville Branch of the A. Ph. A. has been exhibiting samples and considering some of the formulas proposed for admission in the fourth edition of this work.

For convenience these formula were written on sheets of paper 16 by 24 inches. The class of preparations first called attention to was some proposed elixirs.

The first exhibited were those intended for use as vehicles, among which were Comp. Elixir Almonds, Comp. Elixir Cardamom, Aqueous Elixir Licorice, Red Elixir, etc.

Information was desired as to why so many formulas of this class of preparations were included. The explanation given was that it offered the physician a variety of vehicles to choose from differing in flavor and ranging in alcoholic strength from Aqueous Elix. Licorice, with only 3½%, to the Aromatic Elixir of the U. S. P. with 25%.

Dr. Witt asked what class of remedies would be most appropriate to use with the different vehicles? It was suggested that the Comp. Elix. Almonds and the Comp. Elixir of Cardamom would be useful in disguising the taste of the bromides, the iodides and the saline salts, while the Aqueous Elixir of Licorice could be used with the bitter tonics, quinine, etc.

The Comp. Elixir of Sodium Salicylate came in for quite a lengthy discussion. One physician thought it a bad idea to call it an Elixir, because it contains remedial agents; another that sodium salicylate should be left out as it was not indicated in the same case with potassium iodide, one being used in acute and the other in chronic rheumatism, that the use of the salicylates for over 36 to 48 hours was often attended with serious derangement of the stomach and kidneys, that the dose of the iodide was entirely too small for any remedial effect, and that if the dose was increased and the sodium salicylate left out, the combination might make a very good one.

Another doctor thought that such combinations have a tendency to increase counter prescribing and were better left out than inserted, that if the physician wanted such compounds he could write the formula for them. Another was of the opinion that doctors were not very good at writing prescriptions any way and if called on to write the formula for Comp. Cathartic Pills or Blue Mass, he was afraid he could not recall all the ingredients in either.

One doctor asked the object in using the metric system in these formulas, if it was done to mystify and confuse the physician? Dr. Ruddiman replied that when once learned and put into use it was found to be so much more simple and convenient that those using it seldom cared to go back to the old form as one could tell at a glance the percentage of any ingredient in a formula.

The Elixir of Three Bromides and the Formates did not meet with a very enthusiastic reception as "Bee Tea with seven Bees to the cup" would take the place of the Formates, and no two doctors would want the same bromides in his prescription.

The Antiseptic Solution of Pepsin seemed rather of a puzzle as they could not determine whether intended for internal or external use. It was explained that the intention was to use it as an antiseptic like Listerine and that class of preparations.

One doctor thought that all pepsin preparations should be cut out as they are used now only as vehicles.

As regards the physiological solution of Sodium Chloride it was thought well enough to have a standard solution of that. One doctor said that he had forgotten whether it required a teaspoonful of salt to a pint or to a quart of water.

The Solution of Coal Tar was highly commended. One doctor said it was the first formula presented that bore any originality. Another thought it should be classed as a tincture rather than a liquor, as it was made with alcohol. The Liquid Extract of Cinchona was thought to be a useless preparation as the Fluidextract is never used now.

The Aromatic Castor Oil sample made a good impression and was favorably commented on.

Another puzzling class of preparations was the Petrox formulas. The question being raised if they were intended for use as sprays, to which the answer was given that they were too heavy for sprays but were intended for use as liquid ointments, which class of preparations they resembled in their use. The intent of this class of preparations being understood and the many combinations it suggested being named it was more favorably considered.

Dr. George H. Price made a very nice talk, stating that he thought the meeting a good move and should bear fruit. That the idea of the pharmacists bringing these formulas and combinations to the attention of the physicians was a good one and he hoped these joint meetings would be continued.

The consensus of opinion among the physicians seems to be that we already have too many preparations and a resolution was offered by Dr. A. B. Cook that "It was the sense of the Nashville Academy of Medicine that the committee of revision of the N. F. be requested to lessen the number of preparations and simplify the formulas."

From remarks made by some of the speakers the fact was brought out that many physicians do not seem to understand the objects and aims of the different organizations of pharmacists such as the A. Ph. A. The N. A. R. D. and the A. D. S. They do not recognize the fact that pharmacy is a double calling and has a professional and a commercial side, and that it is important if he would make a success of his business and make a living for himself and family he must have a knowledge of both sides for he must buy right if he would dispense right. The A. Ph. A. looks after the professional and the N. A. R. D. helps him along with the commercial end. WILLIAM R. WHITE, Secretary.

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NEW YORK BRANCH.

(March Meeting)

President G. C. Diekman called to order the March meeting of the New York Branch at 9 o'clock on the evening of the 11th. The reading of the minutes having been dispensed with and the report of Treasurer Joseph Weinstein duly received, T. P. Cook, Chairman of the committee on education and legislation, presented the following report which was adopted as read:

"Your committee on education and legislation would respectfully report that on March 6th they attended a hearing before the board of food and drug inspection at Washington, on the pending tentative regulations, with respect to habit-forming drugs. It was explained to the board that our section, while desirous of co-operating with the government in the enactment of legislation to control the sale of habit-forming drugs, were of the opinion that the proposed regulations are unnecessarily drastic, burdensome, and expensive, and would not be productive of the result desired. A number of suggestions were made, which the board promised to take into consideration before again submitting the regulations for the signatures of the three

secretaries. It is believed that in a short time congress will take some action in this matter, based on the findings of the Hague Conference, and *if* congress shall in its wisdom pass a definite law on the subject, it will no doubt be capable of correct interpretation and administration, without due hardship to the trade.

"We understand that the Richardson bill is being rewritten with many of its objectionable features omitted."

The Chairman of the committee on professional relations, J. L. Lascoff, reported that the Branch would take part in a meeting of physicians and pharmacists to be held later in the month under the auspices of the Brooklyn Pharmaceutical Association. In addition he made a motion that steps be taken to arrange for the annual meeting of the Branch with the Medical Society of the County of New York. This matter was discussed briefly by Messrs. McElhenie, Weinstein, Schoenfeld and Craig, and the executive board was instructed to begin the preparations.

Because of the volume of the formal contributions provided in the program, the committee on progress of pharmacy did not present a report. The Chairman, Otto Raubenheimer, however, referred briefly to a new book by Dr. Walsh, entitled "Old-Time Makers of Medicine," and spoke of the approaching International Congress of Applied Chemistry.

At the request of the chair, C. O. Bigelow reviewed the work that had been done by the pharmaceutical conference in opposing the reduction in commissions at telephone pay stations. The result of the four months' deliberations of the conference had been that the pay-station agents were to get a commission based on a sliding scale of from 10 to 20 per cent. of the receipts.

The papers of the evening were then taken up, the first, entitled "The Selenium Treatment of Carcinoma" being presented by Dr. Felix von Oefele. This was a deeply interesting and very instructive presentment of the part the pharmacist should play, but too often does not play, in the application of the newer remedial theories. The pharmacy and pharmacology of the application of selenium derivates in the treatment of cancer were explained quite clearly.

Dr. E. G. Kessler followed with a paper supplementing that of Dr. von Oefele, in which he recounted his work with compounds of selenium in the treatment of human carcinoma.

Considerable discussion more or less germane to pharmacy followed the reading of these papers; and the authors were formally thanked by the Branch.

Mr. Raubenheimer read a paper on "Cork: Its History, Cultivation, and Manufacture," that was replete with information about this common drug-store utility which familiarity has robbed of much interest.

A score or more of the proposed National Formulary preparations were exhibited by Cornelius De Jonge who criticized some of the fourth installment of suggested formulas as follows:

Liquid Petrox—The preparation made according to the suggested formula separated after a day or two; the use of a little more oleic acid remedied this shortcoming. A preparation containing from 10 to 20 grammes more of the acid and correspondingly less liquid petrolatum kept well and required no heating in the manufacture. The present N. F. preparation is also satisfactory.

Diluted Iodine Petrox (alternate formula)—Although the suggested formula for the 10 per cent. iodine petrox gave satisfactory results with the less quantity of iodine it was not possible to get a clear solution except by using the modified liquid petrox referred to in the preceding paragraph.

Sulphur Petrox—It had been impossible to get even 1 gramme of sulphur to stay in solution after the preparation had cooled.

Solid Petrox—This would granulate in a few days. By using spirit of ammonia instead of ammonia water a better product was had. But because of the softness of the finished product the proportions of paraffin and liquid petrolatum should be modified.

Adjournment was taken at 11:50 o'clock.

HUGH CRAIG, Secretary.

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NEW YORK BRANCH.

(April Meeting)

In the absence of President G. C. Diekman, the meeting of the New York Branch of the American Pharmaceutical Association held April 8th, was called to order by Secretary Hugh Craig, T. D. McElheinie subsequently being elected Chairman for the evening.

After the report of Treasurer Joseph Weinstein had been duly received, the committee on the progress of pharmacy reported through its Chairman, Otto Raubenheimer.

In this report were included abstracts of articles in foreign journals on the following subjects: "The Relations of Physicians and Pharmacists," "Tincture of Iodine D. A. V.," "Influence of Solution of Hydrogen Dioxide upon Aromatics in Mouth Washes," "Amylic Alcohol Test for Syrup of Raspberry D. A. V.," "Barium Poisoning," and "A History of Volumetric Analysis." The report also told of the cessation of the sale of solid extract of opium by several manufacturers because it was being used for smoking. A number of approaching meeting of societies were referred to, and the latest edition of Pharmaceutical Formulas was noticed.

For the committee on professional relations, J. Leon Lascoff reported that joint meetings with physicians had recently been held by the Brooklyn Pharmaceutical Association and the Westchester County Pharmaceutical Association. He also told of the plans being perfected for the annual meeting of the Branch with the Medical Society of the County of New York scheduled for May 7th, at the Academy of Medicine, and announced that the committee would meet with a committee from the medical society on the 11th to complete the arrangements.

The Branch then listened to the papers of the evening, the first to be presented being one by Prof. William Mansfield on "White Pine Bark of Commerce." In this the author pointed out the great difference in the content of resin between the rossed bark usually provided and the unrossed bark, showing with micrographs that the greater part of the resin was contained in the layers which were removed by the rossing. Not to the resin-content alone did the speaker confine his remarks, but he told in detail the structural characteristics of white pine bark whereby it might be identified and assayed microscopically.

Prof. H. V. Arny followed with a paper on "The Resin-Content of White Pine Bark." He and Prof. Hostmann had assayed specimens of the bark furnished by Prof. Mansfield, extracting it with hot alcohol and precipitating this extract with water. They found that the unrossed bark gave a precipitate amounting to 14.8 per cent., while the precipitate from the rossed bark was only 6.2 per cent. The ether-soluble portion of the precipitates was 12.9 per cent. and 4.3 per cent. respectively. Prof. Arny raised the question as to whether the resinous portion of the bark was adaptable for use in making a syrup, also as to what was the therapeutically desirable constituent of the bark.

There was considerable discussion of the characteristics, chemistry, pharmacy, and therapy of white pine bark, and also of the specifications necessary for its standardization. Those joining in the discussion were Messrs. May, Raubenheimer, Mayer, De Jonge, Craig, and McElheine.

The authors were formally thanked by the Branch.

Mr. De Jonge brought up for discussion a few of the proposed additions to the National Formulary. He had found that compound elixir of formates did not deposit crystals even when kept out of doors, but that it did change color ranging through yellow, brown, and violet.

Mr. McElhenie said that his compound elixir of formates did not deposit crystals when kept in the store.

Mr. De Jonge also reported that if aromatic solution of pepsin was kept in a warm place it soon lost practically all peptic activity.

Mr. Lascoff, who had experimented with the proposed formula for aromatic fluidglycerate of rhamnus purshiana, said that the resulting preparation was very satisfactory, but the process was involved, time-consuming, and expensive.

This concluded the session, and adjournment was taken until May 13th, when it is planned to have a symposium on the subject of "Ergot."

HUGH CRAIG,
Secretary.

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PHILADELPHIA BRANCH.

(April Meeting)

The last meeting of the Philadelphia Branch was held on Tuesday evening, April 2d, at the College of Physicians.

On account of sudden indisposition Mr. Beringer was unable to present his scheduled paper on Cudbear, and this feature of the meeting was postponed until May.

Mr. Blair's report as Chairman of the committee appointed to consider the advisability of arranging an exhibit at the Atlantic City Convention of the A. M. A. developed an enlivening discussion, some of the members being doubtful of the amount of credit that would reflect upon this body in return for the effort and money expended in preparing a display.

It was suggested that since the A. M. A. members who would attend the convention

came from all over the United States the better plan would be to have the American Pharmaceutical Association finance and man the exhibition, thus distributing the cost over the entire area which derived the benefits accruing therefrom, if any.

It was further stated that but scant recognition from the medical profession had rewarded previous efforts along the line of pharmaceutical displays, a very small part of the medical visitors evincing any interest in the same.

In reply it was asserted that holding an exhibition under the auspices of the A. Ph. A. would undoubtedly be a good plan, but the fact remained that no provision had been made therefor and it was incumbent upon the Branches to carry on the work. Although it might be difficult to trace direct local returns for the effort and money expended, the same reward could be reasonably expected that usually followed continued effort for the general good in other directions.

Tangible recognition had been given this Branch by the A. M. A. in the shape of a certificate of merit for its last display, and a fair proportion of medical visitors had indicated an interest in the exhibition.

Too great a degree of enthusiasm for a pharmaceutical display should not be expected from medical men attending a medical convention, since but a limited number of such visitors had any great interest in drug therapy, and out of this limited number it was safe to assume that a reasonable percentage had shown their interest by a careful inspection of the exhibit.

An interesting discussion of the formula for Solution of Magnesium Citrate was participated in by most of the members present, the topic having been introduced by Mr. J. W. England, whose paper on the same is published in full elsewhere in the JOURNAL.

There was general agreement that the present formula called for an excessive quantity of Citric Acid. The suggestion was made that Ginger be used as an additional flavoring agent as well as to secure its carminative effect ,this substance having had a successful tryout at the hands of a prominent Rhode Island pharmacist during some years.

Sterilization of the product was considered a useless refinement if the formula calls for a freshly-made preparation to be dispensed.

An opinion expressed by Prof. LaWall that met with general favor included the suggestions that the Pharmacopœia should state a method for determining the quantitative estimation of Magnesium Citrate, and also a test indicating the absence of Magnesium Sulphate in the finished product.

AMBROSE HUNSBERGER, Secretary.

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PHILADELPHIA BRANCH.

(Scientific Section)

The regular monthly meeting of the Scientific Section of the Philadelphia Branch of the American Pharmaceutical Association was held April 2d, President C. H. Kimberly presiding. On account of stormy weather the attendance was small, but the interest of the few present was not dampened.

In the absence of the authors, Dr. F. E. Stewart read a paper, prepared by L. H. Bernegan and George E. E'we, on "Effects of Sodium Chloride, Sugar of Milk, Cane Sugar, Different Kinds of Milk, etc., on the Assay of Rennin." Some of the facts brought out were

(1) Of 10 lots of Rennin assayed only 3 were of labeled strength.

(2) Sodium Chloride in proper amounts increases the activity of Rennin, a mixture of Rennin and Sodium Chloride 1 to 7 being apparently most effective.

(3) Milk Sugar increases the milk coagulating power of Rennin, but not to so great an extent as Sodium Chloride. Best results were obtained from a mixture of Rennin and Milk Sugar 1 to 7.

(4) Cane Sugar decreases the activity of Rennin apparently in almost direct proportion to the amount of Cane Sugar used.

(5) Different lots of milk may exert a great influence on the assay of Rennin.

(6) Unpasteurized milk gives higher results than pasteurized milk in the assay of Rennin, and the age of the milk affects the assay.

Wm. A. Pearson gave a very comprehensive "Review of Recent Literature on Pepsin and Pancreatin," in which, among other things, he referred with considerable detail to:

(1) Some of the modern ideas concerning enzymes and their functions.

(2) An article which appeared in the October (1911) number of the Journal of Industrial and Engineering Chemistry on "Laboratory Studies of Pepsin, Pancreatin and Combinations of These," criticizing it because of its lack of charity of language and detail in explanation of processes.

(3) An article which appeared in the November number of the same journal by the same author, commending it for its general excellency.

(4) A paper in November number of the same journal on "A New and Accurate Method for Determining the Tryptic Value of Pancreatin.

(5) A paper in December number of the same journal on "Some Observations upon the Assay of Digestive Ferments."

(6) A tabular statement showing differences in conditions prescribed in the methods of assay for Pepsin as given in the various pharmacopœias.

In the discussion the following gentlemen took active part: Prof. E. F. Cook, Prof. C. H. LaWall, Prof. C. H. Kimberly, Dr. Smith, H. C. Blair, Dr. A. W. Miller, Dr. F. E. Stewart.

F. P. STROUP,
Secretary.

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CITY OF WASHINGTON BRANCH.

Dr. Kebler, in charge of the Drug Division of the Department of Agriculture, gave, at the April meeting of the City of Washington Branch of the American Pharmaceutical Association, held April 10, 1912, at the National College of Pharmacy Building, a most interesting talk on the experiences recently had in his department in making tests of a large number of samples of White and Yellow Wax submitted by competitive bidders for a government tract for these substances. In addition, effervescent salts, with especial consideration to those proposed for the National Formulary, were discussed.

Contrary to the usual rule, Dr. Kebler stated, the higher priced wax samples submitted were of the poorer quality and contained the greatest amount of impurities. Some of the samples contained as much as one-half paraffin, while others were practically, if not entirely, free from that substance. The U. S. P. method for determining the quality of the wax was found wholly unsatisfactory and inadequate, and it was necessary to devise a new method to obtain accurate and dependable results. In the absence of notes, Dr. Kebler did not feel that he should describe the process except informally. The basis for determining the purity rests in the amount of free hydrochloric acid obtained by the test.

When asked the occasion for the presence of such quantities of ceresin and paraffin in the samples submitted, Dr. Kebler stated that he believed this due to the use of so much artificial comb or foundation in the present-day bee farming. This also brought out the statement that glucose, when free from certain impurities, was freely consumed by the bees in the aviary at the Department of Agriculture, but that the honey contained much unconverted glucose.

In the discussion of effervescent salts, the National Formulary direction that the mass should not be stirred was highly commended, it being stated by several members present that it was their experience that stirring wholly or partly destroyed the effervescent quality. Various members told of their efforts to make such salts without the use of a drying oven, and many were their methods. The use of a water bath seemed to have been most successful, although Mr. Bradbury described a method of using empty tins which he had found very satisfactory.

Respectfully submitted,
HENRY B. FLOYD, Secretary,
1840 You Street, N. W., Washington, D. C.

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CHICAGO BRANCH.

The Chicago Branch of the American Pharmaceutical Association held its April meeting at the University of Illinois School of Pharmacy on Tuesday evening, April 16th. The program of the evening consisted of a lecture by Professor A. H. Clark on the Pharmacopœia. Professor Clark dealt especially with the historical development of the Pharmacopœia, tracing its progress from the Pharmacopœia of 1820 down to the present time. He pointed out the important steps of its development and indicated the influence of the gradual increase of interest displayed by pharmacists in the revision of this work from the first Pharmacopœia, controlled entirely by physicians and revised by a committee of less than 20 delegates, down to the present revision controlled by pharmacists and with 300 delegates seated in the convention. Professor Clark's talk was received with much appreciation and President Wells thanked him in behalf of the members present for his instructive lecture. Copies of the Pharmacopœias from the first Pharmacopœia down and various revisions were shown, also a tabulation indicating development of the book from the first Pharmacopœia onward.

W. B. DAY, Secretary.

NEW ENGLAND BRANCH.

The regular meeting of the New England Branch was held at the Boston City Club, Monday evening, April 15. Members of the Boston Association of Retail Druggists and of the M. C. P. Alumni Association were invited to join us at this meeting and were asked to bring physicians as voted at the last Branch meeting. Altogether there were 102 at the dinner, of which number about forty were physicians.

Prof. Charles F. Nixon presided and introduced the speakers.

Mr. Marshall, who is Superintendent of the Propaganda Department of the B. A. R. D., delivered a masterful address of welcome to the guests, most of whom were physicians in his propaganda district and who have shown intense interest in the fight for honest medication.

Mr. Godding, President of the parent body, proud to see such a magnificent gathering under the auspices of his local branch, spoke on the proposed Fluidglycerates, Compound Antiseptic Powder and Glyconin Emulsion of Cod Liver Oil.

Since public opinion has been aroused against cold-storage eggs the use of factory-made and jobber-handled egg emulsions has been diminishing until practically all physicians prescribe this elegant National Formulary Glyconin Emulsion freshly made in small quantities by their local druggists.

Mr. Godding reported favorably on the Fluidglycerates from a pharmaceutical point of view, but it was subsequently voted that we recommend that no Fluidglycerates be included in the National Formulary, the doctors being especially emphatic in their demands that the list of preparations be as limited as possible, many expressing their opinions that even the official fluidextracts were in most cases relics of the heroic medication of bygone days.

Dr. Piper had been asked to speak on the fluidglycerates and the proposed fifty per cent. tinctures from the medical side. Becoming exceedingly interested in the subject he had sent postals to medical men of his acquaintance requesting their views and received no replies favorable to the preparations, but a considerable number quite severe in their condemnation of any attempt to give these lines official recognition.

The Branch then voted unanimously to recommend that these lines be not admitted to the next National Formulary.

Mr. Glover spoke about Liquid Petrox and its combinations, but as he had not finished his experiments he could not give any definite conclusions.

Prof. LaPierre read a paper embodying his results from a series of experiments on the proposed formula for Salicylated Mixture of Iron which has given no end of trouble to those who have tried to prepare it. The following formula he devised which contains the same proportion of Iron in the same condition as in Dr. Cohen's original formula but which offers no difficulty in dispensing.

Sodium Salicylate	125 gm.
Iron and Ammonium Citrate...	36 gm.
Oil of Betula.....	4 cc.
Glycerin	175 cc.
Water to make.....	1000 cc.

Dissolve the Sodium Salicylate in 500 cc. of Water, mix with the Glycerin, add the Iron and Ammonium Citrate previously dissolved in 250 cc. of Water, then the Oil of Betula and Water sufficient to make 1000 cc. Mix and filter if necessary.

Mr. Ackerman reported on some Fluidglycerates and on Syrup of Iron Citrochloride and Syrup Protochloride. No pharmaceutical difficulties were apparent in these.

In the Eighth Revision of the U. S. P. two flavoring tinctures, those of Sweet Orange Peel and Lemon Peel, were introduced, but the experience of the members has been that both are extremely unstable, and to be at all suitable must be made from fresh fruit, taking the utmost care in rejecting the white portion of the underlying peel, and even then must be used at once. In view of this it was voted to recommend that the Spirits made from the volatile oils be again made official and that these tinctures be dropped.

Another official article which has caused trouble because of its poor keeping qualities is Ointment of Rose Water. Most of the commercial Cold Creams have a petrolatum base and keep indefinitely. No physician present knew of any therapeutic advantage of Almond Oil over Liquid White Petrolatum, and it was voted to recommend that the latter be substituted for the Expressed Oil of Almond in this formula in the U. S. P.

A vote of thanks was given to the Convention Entertainment Committee, of which J. F. Finneran was Chairman, for the money which was given the Branch, it being the re-

mainder from the entertainment fund after all expenses of the committee for the 1911 Convention.

R. ALBRO NEWTON,
Secretary.

Changes of Address

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

<>

W. M. FOX,
From 1492 Cedar Ave., Cleveland, O.
To 9702 Cedar Ave., Cleveland, O.

SGT. NELS CASMUSSEN,
From U. S. H. C., San Francisco, Cal.
To Ft. Wint, Grande Island, P. I.

EARL C. RALYA,
From 229 E. Lake Ave., Seattle, Wash.
To Metrop. Pharm., 4th and Union, Seattle, Wash.

HERMAN J. WEBER, Sgt. H. C. U. S. A.,
From Ludlow Barracks, Mind, P. I.
To Honolulu, H. I.

ALONZO F. WOOD, JR.,
From 2 Church St., New Haven, Conn.
To 519 Campbell St., West Haven, Conn.

WALDEMAR B. PHILIP,
From Box 272, Fruitvale, Cal.
To 1410 Fruitvale Ave., Fruitvale, Cal.

ALBERT SCHNEIDER,
From Calif Coll. Pharm., San Francisco, Cal.
To 723 Pacific Bldg., San Francisco, Cal.

WM. H. SAUNDERS,
From Deer Isle, Maine.
To 93 Rice St., North Cambridge, Mass.

THEO. F. MEYER,
From 4th and Clark Sts., St. Louis, Mo.
To 4930 Lindell Blvd., St. Louis, Mo.

LOUIS RUBENSTEIN,
From 708 Second Ave., Seattle, Wash.
To 218 Cherry St., Seattle, Wash.

JOSEPH C. ROBERTS,
From 16 Woodland Ace., Arlington, Md.
To 24 Woodland Ave., Arlington, Md.

OSCAR E. OUELETTE,
From 32 W. Adams St., Detroit, Mich.
To 1173 Hamilton Blvd., Detroit, Mich.

MANUEL ZAMORA,
From 162 Sebastian St., Guiapo, Manila, P.I.
To S. Sebastian, 917, Manila, Guiapo, P. I.

CHAS. W. PATTERSON,
From 87 Lake St., Chicago, Ill.
To 6539 Greenwood Ave., Chicago, Ill.

OTTO E. MUHLHAN,
From 111 St. Clair St., Cleveland, O.
To 10500 Cedar Ave., Cleveland, O.

FRANKLIN B. DUNTLEY,
From Walter Reed Gen. Hosp., Washington, D. C.
To 3 Co. Coast Artillery Corps, Ft. Hamilton, N. Y.

DAVID V. WHITNEY,
From 3226 E. 11th St., Kansas City, Mo.
To 4342 Campbell St., Kansas City, Mo.

JOSEPH B. WELSH,
From 2035 Broadway, Paducah, Ky.
To care Lax Fos Co., Paducah, Ky.

WM. HAMILTON LAMONT,
From 11 S. 4th St., care Eli Lilly & Co., St. Louis, Mo.
To 5728 Julian Ave., St. Louis, Mo.

ROBERT G. ECCLES,
From 191 Dean Ave., Brooklyn, N. Y.
To 681 10th St., Brooklyn, N. Y.